REVISION OF *DRYMADUSA* STEIN AND RELATED GENERA (ORTHOPTERA : TETTIGONIIDAE)

BY

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REVISION OF *DRYMADUSA* STEIN AND RELATED GENERA (ORTHOPTERA : TETTIGONIIDAE)

By T. KARABAG

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INTRODUCTION

The genus *Drymadusa* described a hundred years ago still remains insufficiently known. Ramme revised it in 1939, but somewhat superficially and did not include all the species referred to it by various authors.

When I assembled the material for this revision, it became evident that more than one generic complex was represented and three new genera had to be erected. Dr. B. P. Uvarov also drew my attention to the genus *Ceraeocercus* described by him in 1910, which also belongs to this group of genera.

Three species described in the genus *Paradrymadusa* and referred by Ramme (1939) to *Drymadusa* have been left out as follows : *Paradrymadusa picta* Uvarov, 1929, *Ann. Mus. Zool. Acad. Sci. URSS* : 334 ; *Paradrymadusa beckeri* Adelung, 1907, *Hor. Soc. ent. Ross.* **36** : 45 ; *Paradrymadusa robusta* Miram, 1926, *Rev. russe Ent.* **20** : 277.

In their generic characters, these species approach *Paradrymadusa* rather than *Drymadusa*, particularly as regards the appendages of the last tergite of the male, and the absence of the concave ventral plate which is characteristic of females of our group. Some suggestion of this plate is seen only in *P. picta.*

Amongst the new genera, *Exodrymadusa* is based only on the female sex, which, however, presents such excellent characters that I feel justified in describing it.

In listing the distribution of species, I omitted some published records, since many old determinations are unreliable.

I am sincerely grateful to Dr. B. P. Uvarov for his valuable advice and help throughout this work. I also wish to thank Dr. M. Beier (Vienna), Professor G. Bei-Bienko (Leningrad), Señor E. Morales Agacino (Madrid), Dr. K. Günther (Berlin) for the loan of types, and Dr. D. R. Ragge who helped to obtain them. To the

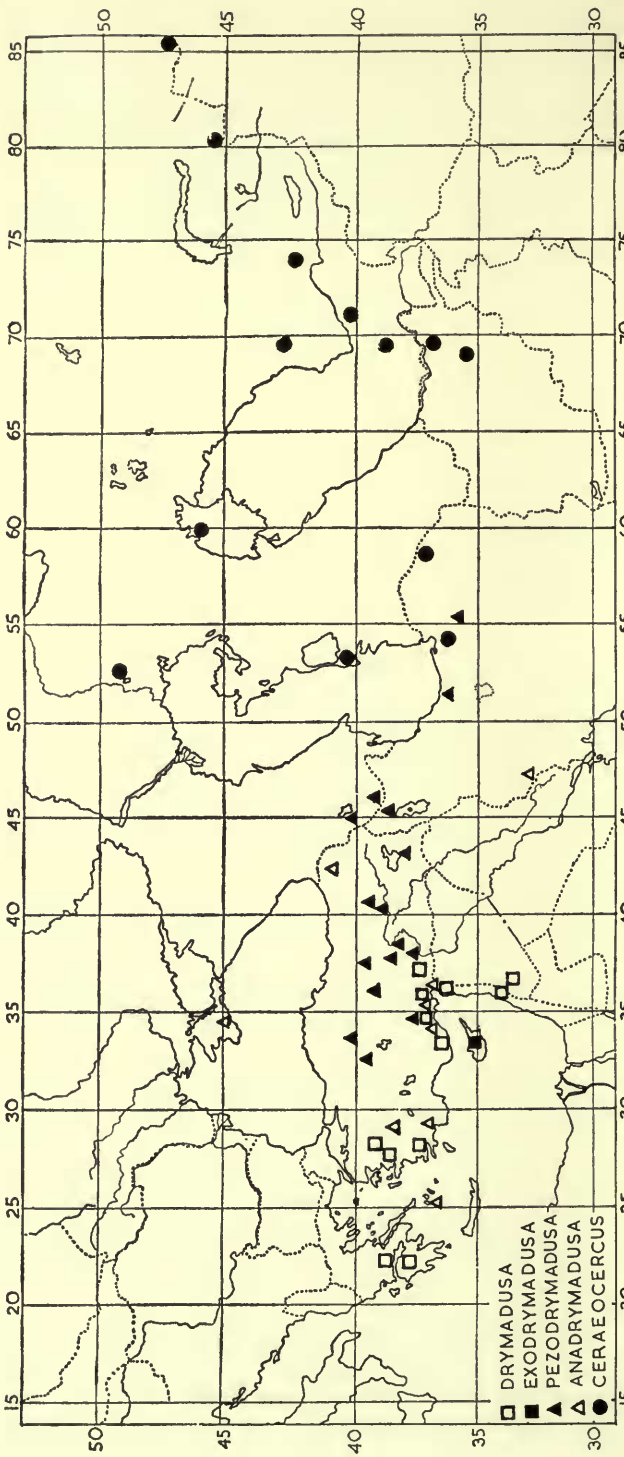


FIG. 1. Distribution of genera.

authorities of the British Museum (Natural History), especially to Dr. W. E. China, I express my appreciation of the facilities provided for this work. The work has been partly assisted by a grant from the Arid Zone Committee of UNESCO, for which I am very grateful.

Types of new species have been deposited in the British Museum (Natural History).

Key to the Genera

1 (8) Wings hyaline. Last tergite of male with long and acute appendages (Text-figs. 7–9, 45–55); cercus (Text-figs. 10–12, 26–44) not branched; basal branches of titillator without thickened bases (Text-figs. 13–15, 56–72). Between VII sternite and subgenital plate of female there is an extra plate with a pair of deep, shiny concavities (except *Anadrymadusa retowskii* Adelung).

2 (5) Posterior margin of pronotum parabolic (Text-figs. 2, 3).

3 (4) Pronotum without median carina; with a distinct transverse depression a little behind the typical sulcus; shoulder excision distinct (Text-figs. 2, 2A); a black or light stripe round posterior edge and a black spot on the shoulder excision. Elytra and wings fully developed, very large

I. ***DRYMADUSA*** Stein

4 (3) Pronotum with distinct median carina on the metazona; with a weak and wide transverse depression behind the typical sulcus; shoulder excision very shallow (Text-figs. 3, 3A); pronotum without black edge or shoulder spot. Elytra and wings reaching middle of abdomen (♂ unknown)

II. ***EXODRYMADUSA*** gen. n.

5 (2) Posterior margin of pronotum broadly rounded (Text-figs. 4–6).

6 (7) Metazona of pronotum convex (Text-fig. 4A) (if flat, then shoulder excision distinct); lateral carina weak; shoulder excision indistinct. Elytra shorter than half of abdomen. Ovipositor much shorter than twice the length of pronotum . . . . . III. ***PEZODRYMADUSA*** gen. n

7 (6) Metazona of pronotum flat; lateral carina distinct on the metazona; shoulder excision distinct (Text-figs. 5, 5A) (in *retowskii* very shallow). Elytra mostly longer than half of abdomen. Ovipositor more than twice the length of pronotum . . . . . IV. ***ANADRYMADUSA*** gen. n.

8 (1) Wings black, or brown with lighter fenestration. Last tergite of male with two broad lobes, each strongly down-curved, ending in a very small acute spine (Text-figs. 131, 131A); cercus (Text-fig. 132) with two branches; basal branches of titillator with thickened bases (Text-fig. 73). No bi-concave plate between VII sternite and subgenital plate of female (Text-fig. 136)

V. ***CERAEOCERCUS*** Uvarov

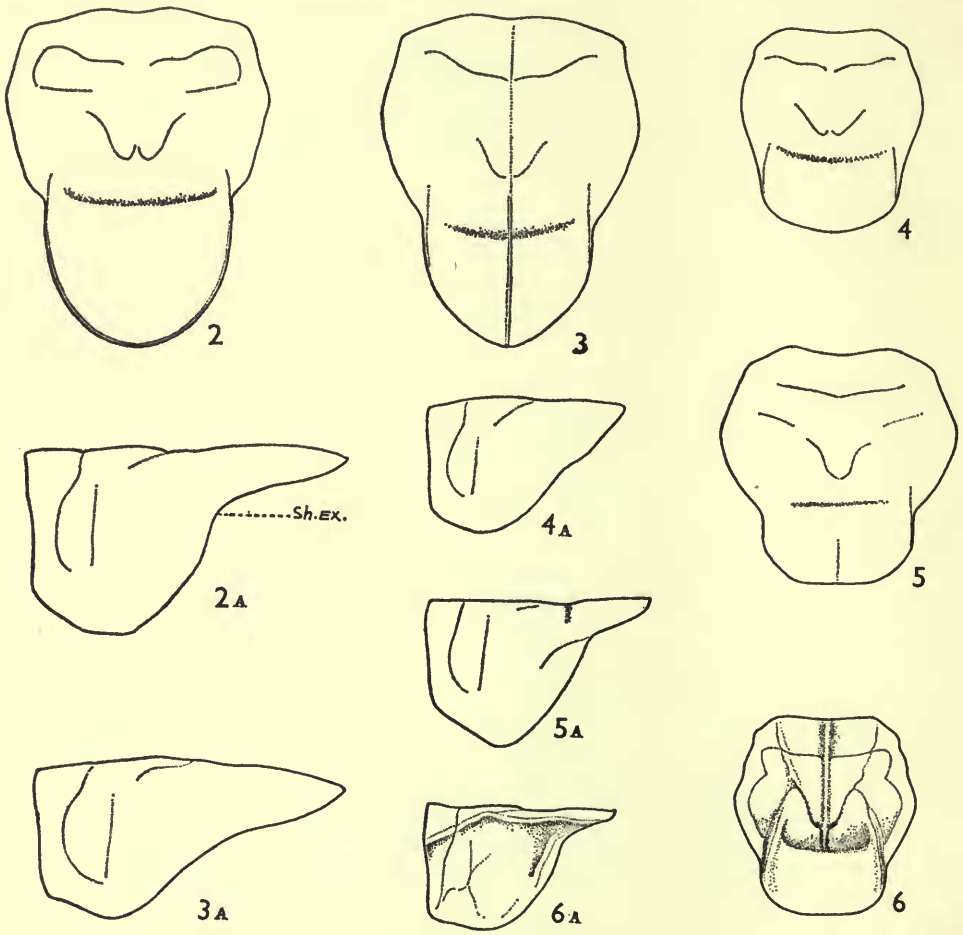
I. ***DRYMADUSA*** Stein, 1860

1860. *Drymadusa* Stein, *Berl. ent. Zeitschr.* **4** : 257.
1874. *Drymadusa* Herman, *Verh. Zool.-bot. Ges. Wien*, **24** : 199, 206.
1882. *Drymadusa* Brunner-Wattenwyl, *Prodr. eur. Orthopt.* : 313.

Fastigium of vertex wider than first antennal segment, suddenly narrowed at the front, with very fine median sulcus. Between eyes there is a typical black transverse band. First sulcus of pronotum distinct; typical sulcus almost in the middle of pronotum. Hind femur very strong and large.

♂. Appendages of last tergite very long and acute. Cercus stout, with an enlarged basal articulation ; basal part much longer than the apical, incurved. Subgenital plate longer than wide, with a deep roundly-angular excision.

♀. Last tergite with long spine-like appendages. Between VII sternite and subgenital plate there is a ventral plate, which is much longer and wider than the VII



FIGS. 2–6. Pronotum of male. 2, *Drymadusa limbata limbata* Br.-W.; 2A, in profile ; *Sh. Ex.* = shoulder excision ; 3, *Exodrymadusa inornata* (Uv.) ; 3A, in profile ; 4, *Pezodrymadusa angorensis* (Uv.) ; 4A, in profile ; 5, *Anadrymadusa spinicercis* (Karab.) ; 5A, in profile ; 6, *Ceraeocercus fuscipennis fuscipennis* Uv.; 6A, in profile.

sternite, and has a pair of elongate shiny concavities, separated by a high and stout median carina. Subgenital plate with a deep acutangular excision. Ovipositor long and very stout, slightly decurved.

Type of genus *Ephippigera dorsalis* Brullé, 1832.

The bi-concave ventral plate of the female is a most important generic character, but it is not clear whether it forms a part of the VII sternite or of the subgenital plate.

DISTRIBUTION. Greece, Turkey, Syria.

KEY TO SPECIES

1 (2) A narrow and short, not very distinct, black spot at the corner of shoulder excision; elytra grey, with white, irregular spots and pattern, without blackish spot at the base.
♂: Appendages of last tergite very long, spine-like, thin (Text-fig. 7); cercus slender, its apical part much thinner than the basal, outer angle attenuated, acute (Text-fig. 10); middle branches of titillator with strong teeth in a longitudinal line, its basal branches narrow (Text-fig. 13).
♀: Appendages of last tergite long (Text-fig. 19), slightly divergent; median carina of bi-concave plate very wide and stout; subgenital plate approximately as long as wide (Text-fig. 21) . . . . 1. ***dorsalis*** (Brullé)

2 (1) A very distinct black spot at the corner of shoulder excision. Elytra light or dark reddish-brown, with irregular dark spots, and a long dark brown or blackish spot at the posterior basal angle. ♂: Cercus stout, outer angle not acute (Text-figs. 11, 12); basal branches of titillator very wide (Text-figs. 14, 15).

3 (4) Pronotum more slender. Elytra not very wide. ♂: Appendages of last tergite as in Text-fig. 8; cercus not very large (Text-fig. 11), gradually incurved, its apical part tapering, outer angle rounded; titillator (Text-fig. 14) strong, its basal branches regularly incurved, central branches near each other, with dense teeth in a longitudinal line. ♀: Bi-concave ventral plate as in Text-fig. 22
2. ***limbata limbata*** (Br.-W.)

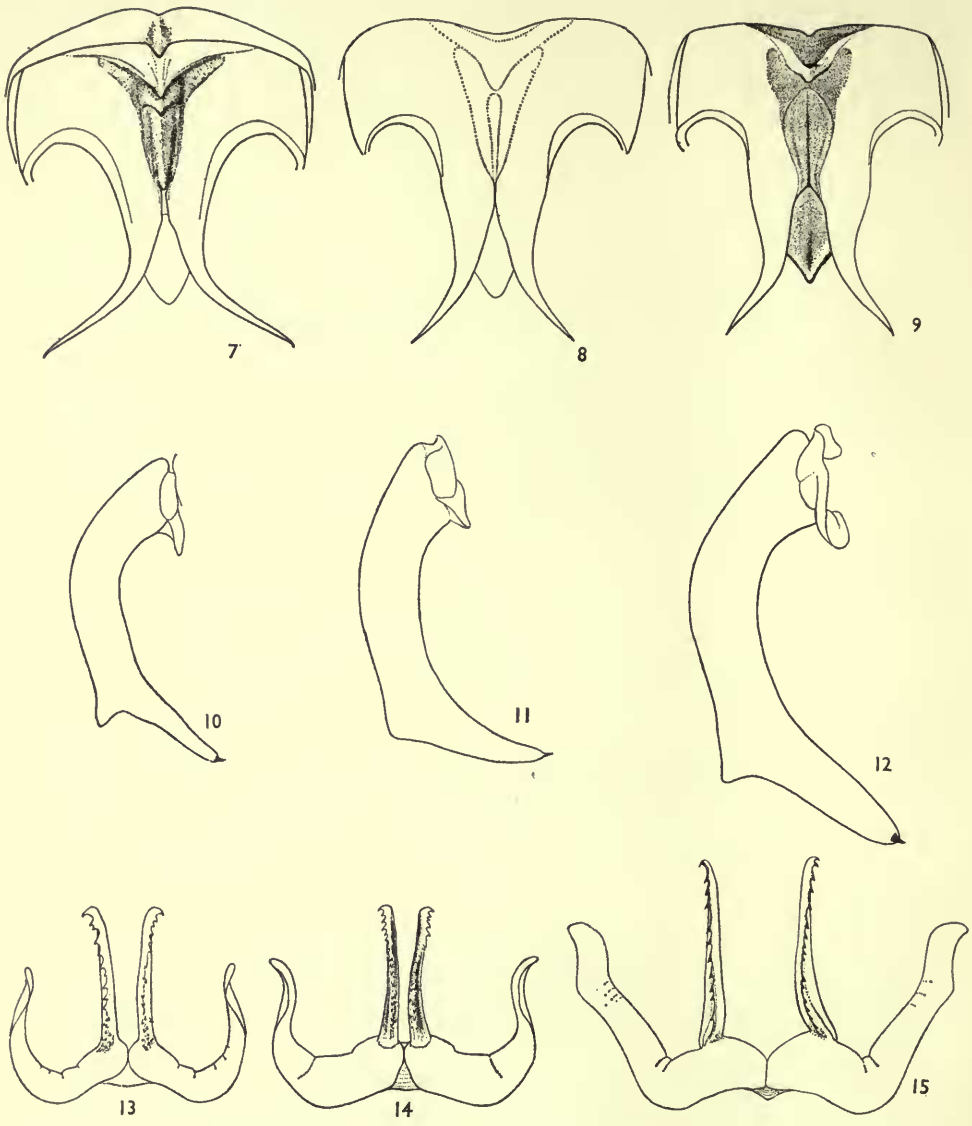
4 (3) Pronotum very stout. Elytra very wide. ♂: Appendages of last tergite as in Text-fig. 9; cercus very large, strongly incurved at the basal third (Text-fig. 12), its apical part very long and thick, outer angle subacute; titillator (Text-fig. 15) very large and stout, its basal branches very long, middle branches not near each other; ♀: bi-concave plate, see Text-fig. 23
3. ***limbata grandis*** sbsp. n.

1. *Drymadusa dorsalis* (Brullé, 1832)

1832. *Ephippigera dorsalis* Brullé, *Exped. sc. de Moreé, Zool.*: 90, plate XXIX, fig. 8 (larva).
1860. *Drymadusa spectabilis* Stein, *Berl. ent. Zeitschr.* **4**: 258.
1861. *Gampsocleis spectabilis* Brunner-Wattenwyl, *Verh. Zool.-bot. Ges. Wien*, **11**: 288, pl. IX, fig. 3, A, B, C, D.
1874. *Drymadusa spectabilis* Herman, *Verhh. Zool.-bot. Ges. Wien*, **24**: 206, pl. IV, figs. 43–48.
1882. *Drymadusa spectabilis* Brunner-Wattenwyl, *Prodr. eur. Orthopt.*: 313, 314.

Pronotum relatively slender, pro- and mesozona slightly convex, metazona flattened; posterior edge of pronotum almost half circle. Elytra not very wide.

Face uniformly light brown, occiput darker; black band between eyes very distinct; posterior margin of pronotum with black edge. Legs light greyish-brown, outer surface darker, with marked pattern, a short transverse series of blackish-brown stripes on the basal upper edge.



FIGS. 7–15. 7, *Drymadusa dorsalis* (Brullé) : ♂ last tergite ; 8, *D. limbata limbata* Br.-W., ♂ last tergite ; 9, ♂ *D. limbata grandis* sbsp. n. last tergite ; 10, *D. dorsalis* (Brullé), ♂ left cercus ; 11, *D. limbata limbata*, Br.-W., ♂ left cercus ; 12, D. *limbata grandis* sbsp. n., ♂ left cercus ; 13, *D. dorsalis* (Brullé), ♂ titillator ; 14, *D. limbata limbata* Br.-W., ♂ titillator ; 15, *D. limbata grandis* sbsp. n. ♂ titillator.

♂. Appendages of last tergite very long, spine-like, strongly down-curved. Subgenital plate (Text-fig. 16), with subacute excision, styli not very long.

♀. Face more reddish-brown than in ♂, occiput darker, and more convex; appendages of last tergite long, spine-like; VII, VIII and IX sternites each with a small median projection; VII sternite is smallest, weakly convex; basal part of the median carina of bi-concave ventral plate wide; ovipositor almost straight.

Length of body, ♂, 44·1–46·1, ♀, 42·6; pronotum, ♂, 13·7–14, ♀, 13·6; elytra, ♂, 46·4–48, ♀, 54; fore femur, ♂, 12–12·3, ♀, 12; hind femur, ♂, 38–38·7, ♀, 38·9–40·4; ovipositor, 32 mm.

Specimens examined: Parnass, Greece, 1 ♂, 1 ♀ (Krüper), 42 (Mus. Vienna); Greece, 1 ♀ larva, 70/47 (labelled *Ephippigera dorsalis* ??); Peloponesus, Micaene, 1 ♂, vii.1938 (O. Grebenchikoff); Greece, 1 ♀ larva, 70'47 (British Museum).

Herman (1874) mentioned this species also from Asia Minor, but without exact locality and the record is doubtful.

2. ***Drymadusa limbata limbata*** Br.-W., 1882

1882. *Drymadusa limbata* Brunner-Wattenwyl, *Prodr. eur. Orthopt.*: 314 (Partim).

Pronotum long, metanotum very long and parabolic, with a light line round the posterior margin. Elytra extend beyond hind knee, not very wide. Hind femur relatively stout. ♂: Subgenital plate much longer than wide, with a deep angular excision (Text-fig. 17). ♀: Subgenital plate large and convex, with a depression in the middle of its apical part; ovipositor regularly down-curved.

Coloration reddish-brown (some specimens paler). Metazona darker; hind femur more or less marbled, with a dark brown (in some specimens lighter) ring in the middle.

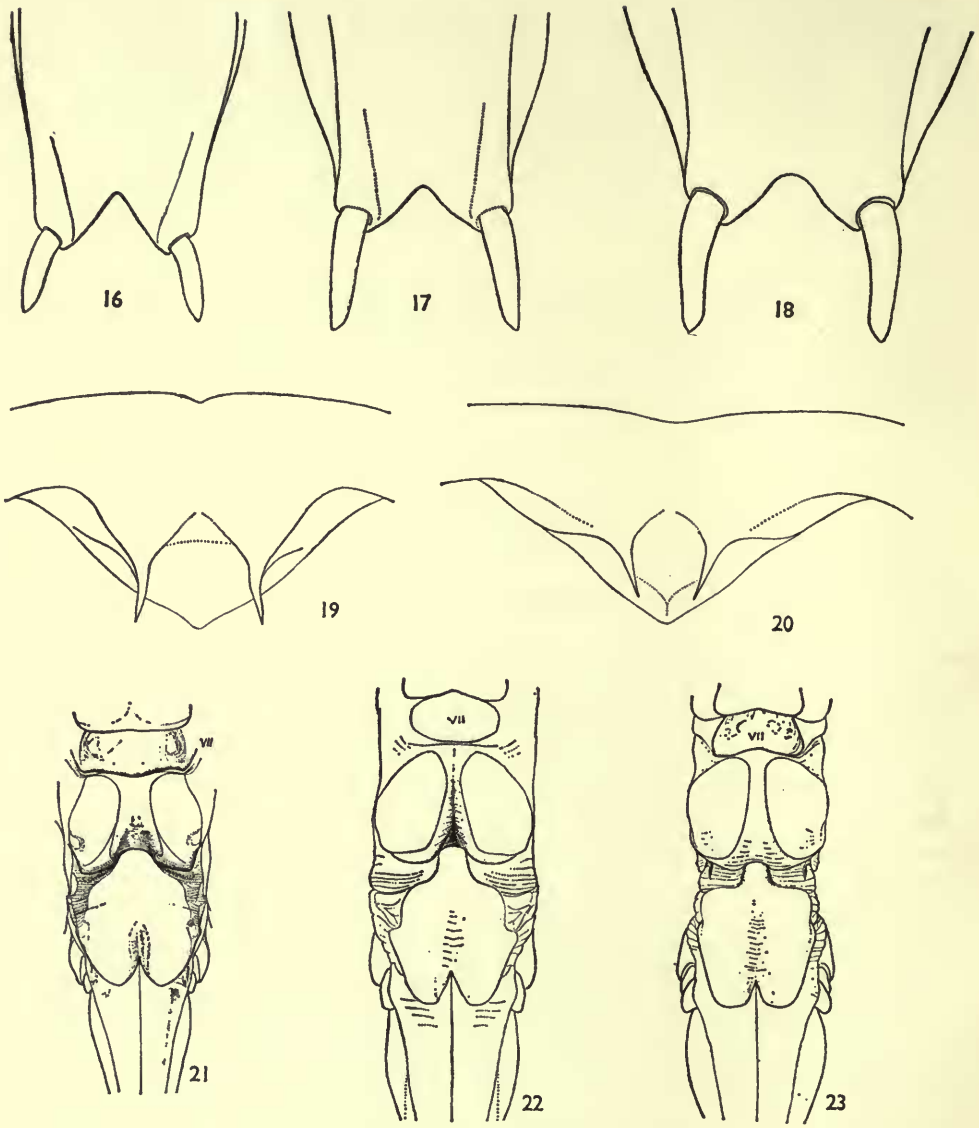
Length of body, ♂, 44·4–45·6, ♀, 45·5–48·3; pronotum, ♂, 12·6–15·2, ♀, 13–13·5; elytra, ♂, 42·1–52·1, ♀, 55–58·5; fore femur, ♂, 12·6, ♀, 11·2–12·3; hind femur, ♂, 35·8–41·6, ♀, 38·3–40·2; ovipositor, 27·1–27·9 mm.

Specimens examined: Smyrna, W. Turkey, 1 ♂ (Brunner-Wattenwyl), 5941 (Mus. Vienna); Manisa, W. Turkey; Kurkcu, 10.vii.1933, 1 ♂, 7–10.viii.1941, 2 ♂, 1 ♀, 14.vi.1944, 1 ♂, 1 ♀ larva, 20.viii.1944, 1 ♀ (Zoological Institute, University of Ankara).

I examined Brunner's ♂ from Smyrna (Izmir) and designate it here as the type. It is a little larger and darker than the Manisa specimens, but other characters agree.

Brunner (1882) recorded this species also from Damascus and Beirut, and Werner (1901, *Sitzber. Akad. Wiss., Mathem.-naturw. Cl.* **110**: 290) mentioned specimens from Cilician Taurus, Bimbogha Dagh, Ala Cheir (Turkey) and Samos (Greece).

Werner's Ala Cheir (= Alašehir) record is very likely to be *D. limbata limbata* as this place is near the type locality; Bimbogha Dagh records a Cilician Taurus specimen, which was a ♀ larva, and the Syrian records probably belong to the next subspecies. The record from Samos is quite uncertain.



FIGS. 16–23. 16, *Drymadusa dorsalis* (Brullé), ♂ subgenital plate ; 17, *D. limbata limbata* Br.-W., ♂ subgenital plate ; 18, *D. limbata grandis* sbsp. n., ♂ subgenital plate ; 19, *D. dorsalis* (Brullé), ♀ appendages of last tergite ; 20, *D. limbata grandis* sbsp. n., ♀ appendages of last tergite ; 21, *D. dorsalis* (Brullé), ♀ VII sternite, bi-concave plate, subgenital plate and basis of ovipositor ; 22, *D. limbata limbata* Br.-W., ♀ VII sternite, bi-concave plate, subgenital plate and basis of ovipositor ; 23, *D. limbata grandis* sbsp. n., ♀ VII sternite, bi-concave plate, subgenital plate and basis of ovipositor.

3. ***Drymadusa limbata grandis*** sbsp. n.

1882. *Drymadusa limbata* Brunner-Wattenwyl, *Prodr. eur. Orthopt.* : 314 (Partim).

♂. Larger than *D. limbata limbata*, and differs from it in the following characters : Pronotum stout, metazona more elongate, not flattened, posterior edge more parabolic ; elytra and wings very large, extending well beyond the hind knee ; hind femur very stout. Subgenital plate much longer than wide, with a deep and subacute excision (Text-fig. 18).

General coloration dark reddish-brown, face lighter, unicolourous ; first four segments of antennae black anteriorly ; upper surface of pronotum dark, particularly at the metazona ; a light stripe round posterior margin ; elytra with light brown irregular black spots ; a large dark brown ring on the middle of hind femur.

♀. Appendages of last tergite (Text-fig. 20), long and spine-like. The bi-concave ventral plate very large, longer than subgenital plate ; ovipositor strong, slightly down-curved.

Coloration as in ♂, but darker.

Length of body, ♂, 45–50·2 (type), ♀, 45·8–55·6 ; pronotum, ♂, 15·1–16·8 (type)—17·3, ♀, 15·2–17·8 ; elytra, ♂, 55·3 (type)—58·6, ♀, 62–68 ; fore femur, ♂, 12·2–13·1 (type), ♀, 13–14 ; hind femur, ♂, 42·5–45 (type), ♀, 44–46·1 ; ovipositor, 30·1–36 mm.

Specimens examined : Adana, S. Turkey, 1 ♂ (type), 25.510 ; Gjöl-banhi (=Göl-başi), 1882, 1 ♀ (Lushan) (Vienna Museum) ; Kuzucubeleni, Mersin Dist., 1936, 1 ♂ (Mr. Cotton) ; Asia Minor, Pres. by Robt. M. Anderson, 58.161 ; Marash, 1931, 1 ♀ (E. Cold.), 1931–334 ; Mugla, Agia, *c.* 1,000 m., 22.vii.1947, 1 ♀ (M. Burr), 1947–350 (British Museum) ; Hatay-Yayladag, Yenice Köy, 5.viii.1951, 1 ♂, 1 ♀ ; Mersin-Silifke, 28.viii.1952, 1 ♂, 1 ♀ (Ö. K. Gülen) ; Mersin, 22, 23, 28.vii.1952, 3 ♀ ; Mersin-Gülnar, Bozaga Köyü, 15.ix.1952, 1 ♀ ; Mersin-Cevlik Köyü, 8.vii. 1952, 2 ♀ (Ö. K. Gülen) (Zoological Institute, University of Ankara).

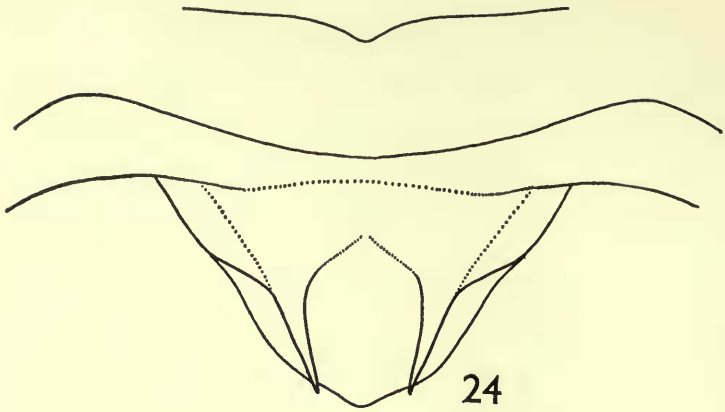
This new subspecies was sent to me from the Vienna Museum as *D. limbata* Br.-W., but it proved to be distinct in the size of pronotum, elytra, hind femur and structure of cercus and titillator. The type has been returned to the Vienna Museum.

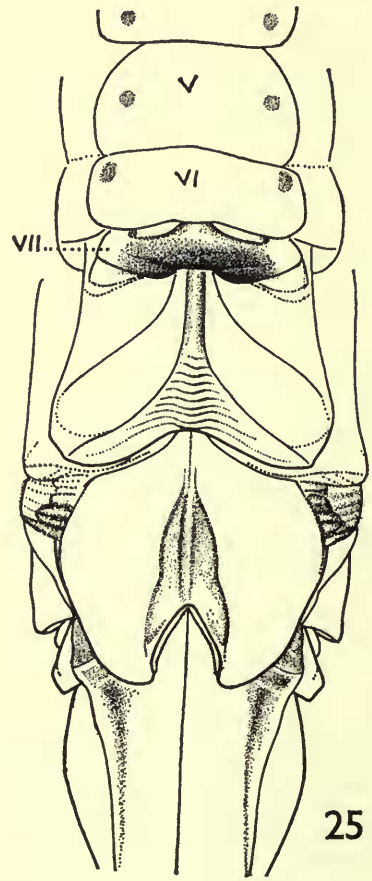
Previous records of *D. limbata* from Syria probably refer to this subspecies.

II. ***EXODRYMADUSA*** gen. n.

Type : *Drymadusa inornata* Uvarov, 1926.

♀. Fastigium of vertex with fine median sulcus. Between eyes there is a black transverse band. Pronotum stout, relatively long and distinctly convex in profile ; median carina slightly perceptible in prozona and distinct in metazona ; first transverse sulcus distinct ; typical sulcus roundly curved behind the middle of pronotum ; lateral lobes oblique, convex. Elytra with parabolic apices. Appendages of last tergite long and acute (Text-fig. 24) ; bi-concave ventral plate very large (Text-fig. 25) ; ovipositor long.





FIGS. 24–25. *Exodrymadusa inornata* (Uv.). 24, ♀ appendages of last tergite; 25, V–VII sternites, bi-concave plate, subgenital plate and basis of ovipositor.

Exodrymadusa inornata (Uvarov, 1936)

1936. *Drymadusa inornata* Uvarov, *Ann. Mag. nat. Hist.* **38** : 510.

♀. Large and robust. Lateral pronotal lobes much longer than deep, their front margin straight. Elytra reaching slightly beyond the third tergite. Hind femur relatively short and slender. Subgenital plate broadly oval, with double sulcus and distinct median carinula ; the second half with a sulcus on each side ; lobes slightly incurved, with a deep acutangular excision. Ovipositor nearly as long as the hind femur, very slightly decurved, with the apex tapering to a point.

Coloration uniformly dull brown ; face light brown, with black band between eyes ; front of first and half of second antennal segments blackish. Pronotum without pattern. Elytra uniformly dark brown, a small elongated dark brown spot at the posterior basal angle of elytra ; legs greyish brown.

Length of body, 33–41·3 ; pronotum, 13·1–15 ; elytra, 12–14·3 ; fore femur, 11·1–14·3 ; hind femur, 11·1–12 ; ovipositor, 29–30 mm.

Specimens examined : Cyprus, Limassol, June, 1919, 1 ♀ (type) ; Cyprus, Stauro-vouni Mt., 2,400 ft., 25.v.1937, 1 ♀, 1 ♀ larva ; Pera-Pedi, 2,500 ft., 23.vii.1937, 1 ♀ (G. A. Mavromoustakis) (British Museum).

It would be extremely interesting to study the male of this very distinct insect.

III. ***PEZODRYMADUSA*** gen. n.

Type : *Drymadusa angorensis* Uvarov, 1931.

Pronotum cylindrical, convex in pro- and mesonotum, metanotum mostly not flattened ; behind typical sulcus a wide transversal depression ; no median carina ; lateral carinae distinct only at the shoulders ; shoulder excision very shallow ; first sulcus distinct ; typical sulcus less distinct, widely curved a little behind the middle. Elytra shorter than half of abdomen.

Face with a distinct narrow black or dark brown band between eyes. Pronotum usually with typical X-shaped pattern.

♂. Subgenital plate longer than wide, with a round excision ; styli very short, cylindrical ; cercus with enlarged basal articulation.

♀. Bi-concave ventral plate present ; ovipositor stout, shorter than 1½ times pronotum, distinctly and regularly down-curved.

DISTRIBUTION. Turkey, Transcaucasia, Iran.

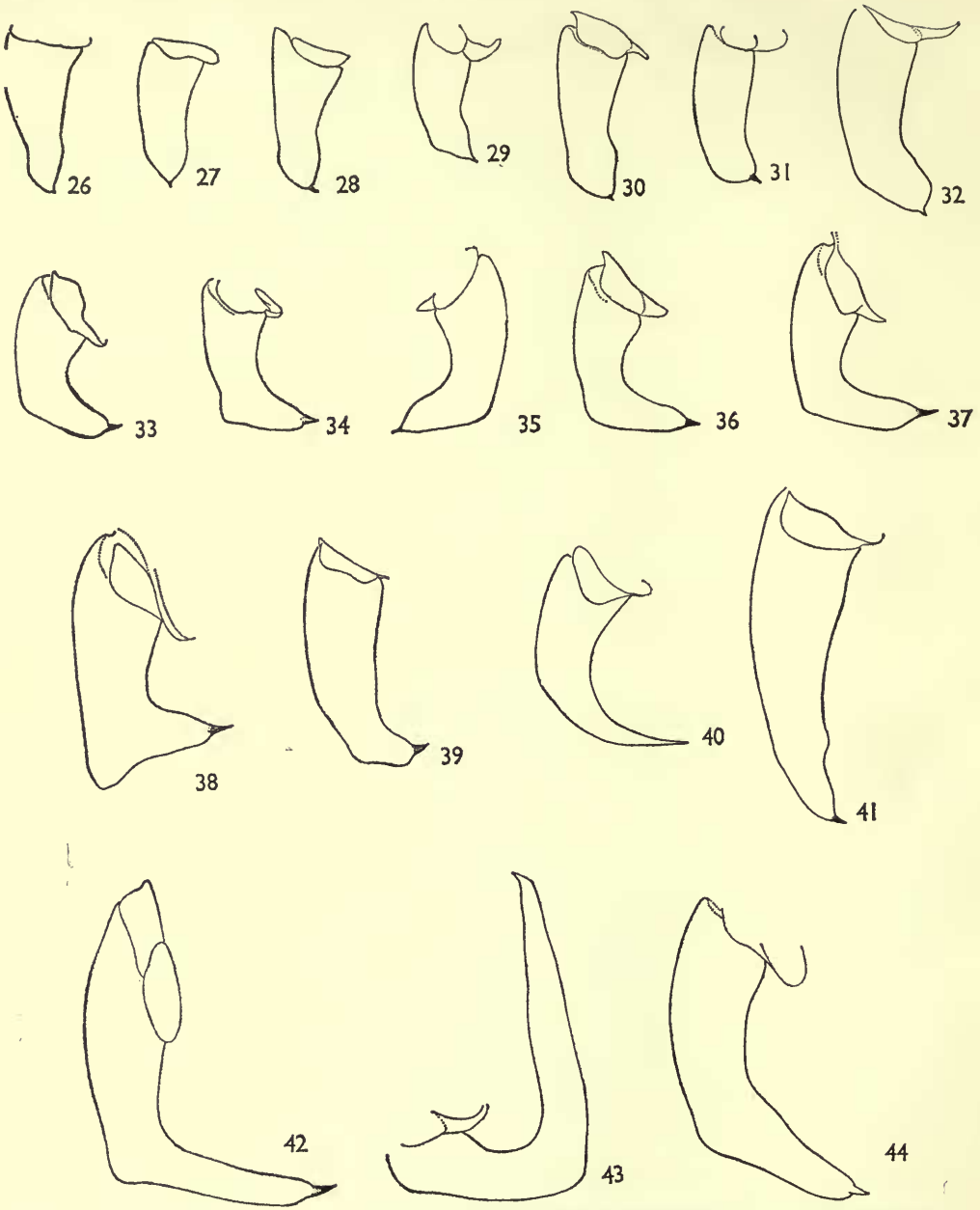
KEY TO SPECIES

Male

1 (14) Cercus straight or slightly incurved (Text-figs. 26–32).

2 (7) Cercus straight (Text-figs. 26–28).

3 (4) Sides of last tergite black ; its appendages long, stout, almost parallel, joined at the base (Text-fig. 45) ; cercus gradually narrowed to the apical third, which is slightly S-shaped, with a small apical tooth (Text-fig. 26) ; median branches of titillator stout, with strong and numerous spines, without spines on its basal part (Text-fig. 56) . . . . . 1. ***magnifica*** (Werner)



FIGS. 26–44. Left cercus of ♂. 26, *Pezodrymadusa magnifica* (Wern.); 27, *P. subinermis* sp. n.; 28, *P. konowi* (Bol.); 29, *P. indivisa* sp. n.; 30, *P. kurmana* (Rme.); 31, *P. lata* sp. n.; 32, *P. uvarovi* sp. n.; 33, *P. sinuata* Rme.; 34, *P. grisea* (Rme.); 35, *P. diffusa* (Rme.), right cercus; 36, *P. striolata* (Rme.); 37, *P. angorensis* (Uv.); 38, *Anadrymadusa spinicercis* (Karab.); 39, *A. ornatipennis* (Rme.); 40, *A. retowskii* (Adel.); 41, *A. adzharica* (Uv.); 42, *A. brevipennis* (Br.-W.); 43, *A. curvicercis* (Uv.); 44, *A. recticauda* (Wern.).

4 (3) Last tergite unicolourous, its appendages short and thin (Text-figs. 46, 47); median branches of titillator slender, with small and numerous spines including their basal parts (Text-figs. 57, 58).

5 (6) Elytra not black, with irregular brown spots; appendages of last tergite very short and almost parallel (Text-fig. 46); cercus as in Text-fig. 27; median branches of titillator very thin, with a few fine spines (Text-fig. 57) 2. ***subinermis*** sp. n.

6 (5) Elytra black, with irregular creamy spots; appendages of last tergite long and strongly divergent (Text-fig. 47); cercus narrowed gradually to the last third, then slightly thickened, with a strong apical tooth (Text-fig. 28); median branches of titillator long and strong, with numerous spines (Text-fig. 58) 3. ***konowi*** (I. Bolivar)

7 (2) Cercus slightly incurved (Text-figs. 29–32).

8 (9) Apical part of cercus long, strongly convex on the inner side, its outer edge almost straight, with a small apical tooth (Text-fig. 32); appendages of last tergite very long, strongly divergent (Text-fig. 51); median branches of titillator short and stout, with very strong teeth (Text-fig. 62) 4. ***uvarovi*** sp. n.

9 (8) Apical part of cercus short, not strongly convex on the inner side (Text-figs. 29–31); appendages of last tergite not very long, slightly divergent (Text-figs. 48–50).

10 (11) Apical part of cercus subtriangular, with a convexity near apex and a long apical tooth (Text-fig. 29); basal parts of titillator fused, its median branches with dense teeth (Text-fig. 59) . . . . . 5. ***indivisa*** sp. n.

11 (10) Apical part of cercus rounded (Text-figs. 30, 31).

12 (13) Apical part of cercus subacute, its apical third distinctly convex, with a small apical tooth (Text-fig. 30) basal branches of titillator very narrow, median branches with numerous spines (Text-fig. 60); upper surface of pronotum blackish-brown, except posterior edge of metazona . . 6. ***kurmana*** (Ramme)

13 (12) Apical part of cercus round, with a strong apical tooth (Text-fig. 31); basal branches of titillator wide at the middle, median branches stout and with strong and numerous teeth (Text-fig. 61); upper surface of pronotum dirty dark brown . . . . . 7. ***lata*** sp. n.

14 (1) Cercus strongly incurved (Text-figs. 33–37).

15 (18) Apical part of cercus distinctly shorter than the basal (Text-figs. 33, 34).

16 (17) Appendages of last tergite gradually narrowing, weakly divergent (Text-fig. 52); apical part of cercus scarcely narrowed to a rounded apex, without distinct knee (Text-fig. 33) (titillator in the paratype missing) . 8. ***sinuata*** (Ramme)

17 (16) Appendages of last tergite suddenly narrowed in the apical half, strongly divergent (Text-fig. 53); apical part of cercus subacute, with a distinct knee (Text-fig. 34); basal branches of titillator very narrow, median branches strong, with a line of strong teeth (Text-fig. 63) . . 9. ***grisea*** (Ramme)

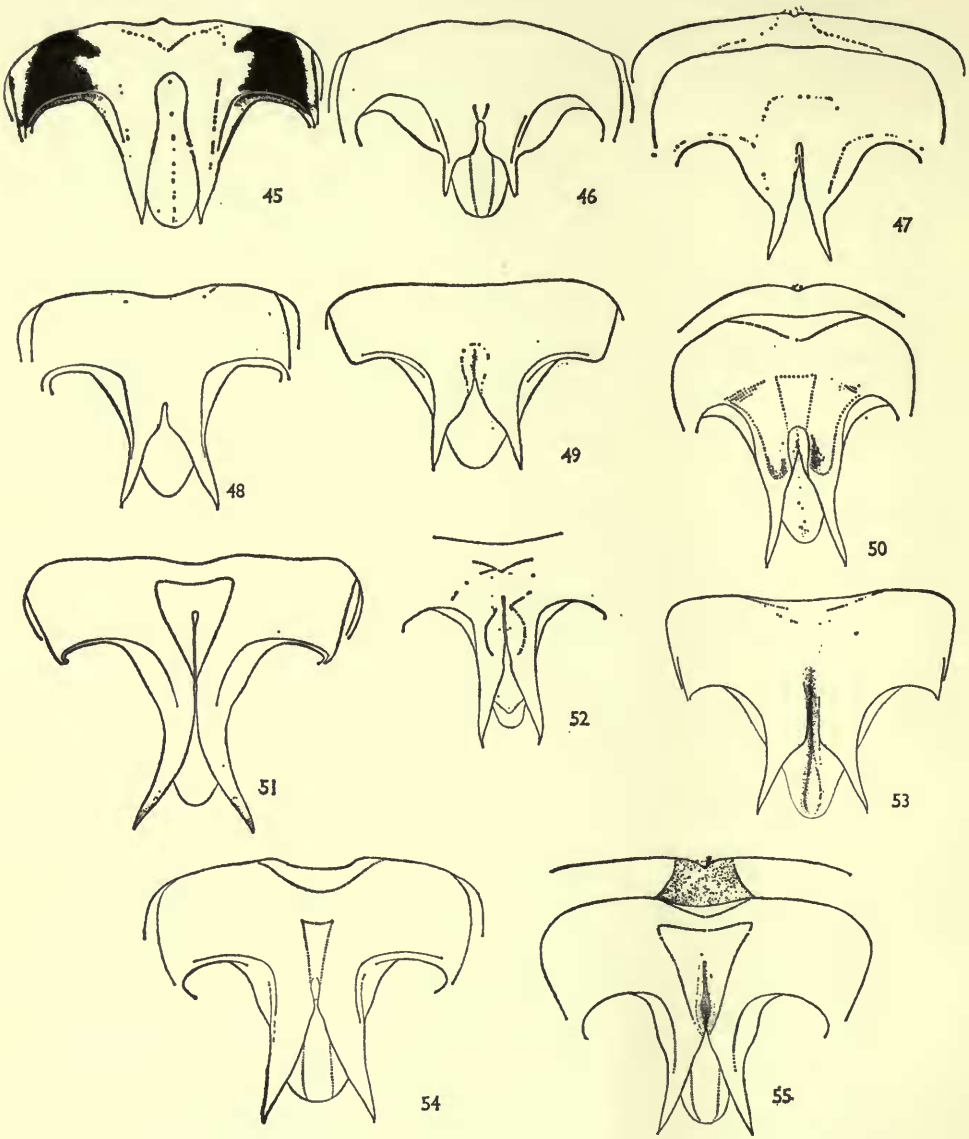
18 (15) Cercus with the apical part not shorter than the basal (Text-figs. 35–37).

19 (20) Apical part of cercus short and thick, strongly convex on the inner side (Text-fig. 35) . . . . . 10. ***diffusa*** (Ramme)

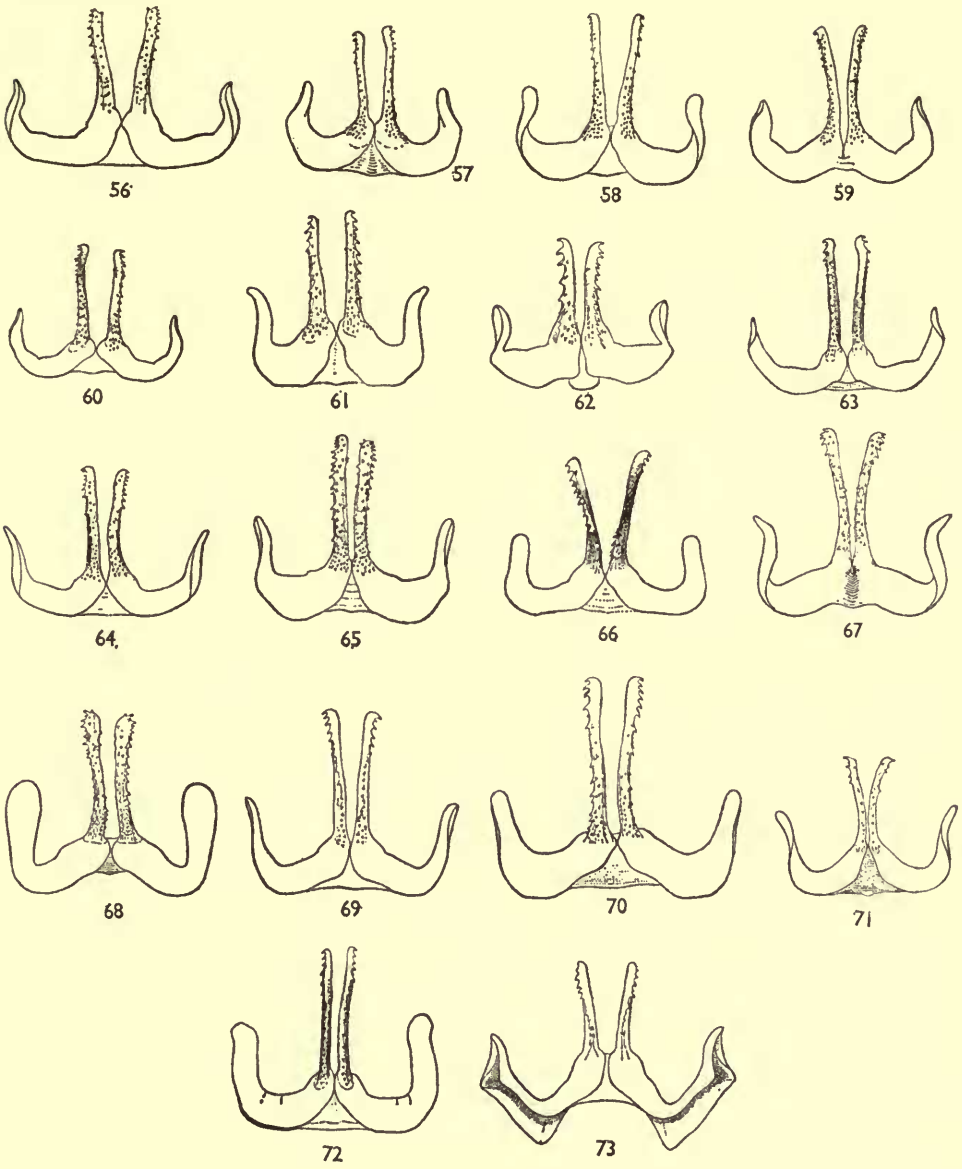
20 (19) Apical part of cercus long, tapering (Text-figs. 36, 37).

21 (22) Apical part of cercus as long as basal (Text-fig 36); basal branches of titillator very narrow, median branches stout, with strong teeth (Text-fig. 64) 11. ***striolata*** (Ramme)

22 (21) Apical part of cercus longer than the basal (Text-fig. 37); basal branches of titillator wide, median branches with strong teeth (Text-fig. 65) 12. ***angorensis*** (Uvarov)



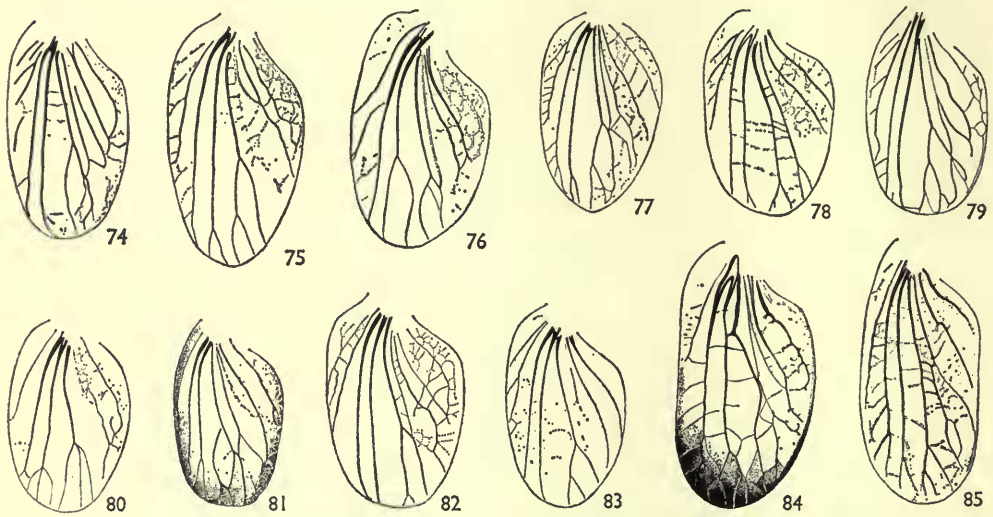
FIGS. 45–55. Last tergite of ♂. 45, *Pezodrymadusa magnifica* (Wern.) ; 46, *P. subinermis* sp. n.; 47, *P. konowi* (Bol.) ; 48, *P. indivisa* sp. n.; 49, *P. kurmana* (Rme.) ; 50, *P. lata* sp. n.; 51, *P. uvarovi* sp. n.; 52, *P. sinuata* (Rme.); 53, *P. grisea* (Rme.) ; 54, *P. striolata* (Rme.); 55, *P. angorensis* (Uv.).



FIGS. 56–73. ♂ titillator. 56, *Pezodrymadusa magnifica* (Wern.); 57, *P. subinermis* sp. n.; 58, *P. konowi* (Bol.); 59, *P. indivisa* sp. n.; 60, *P. kurmana* (Rme.); 61, *P. lata* sp. n.; 62, *P. uvarovi* sp. n.; 63, *P. grisea* (Rme.); 64, *P. striolata* (Rme.); 65, *P. angorensis* (Uv.); 66, *Anadrymadusa brevipennis* (Br.-W.); 67, *A. curvicercis* (Uv.); 68, *A. spinicercis* (Karab.); 69, *A. recticauda* (Wern.); 70, *A. adzharica* (Uv.); 71, *A. retowskii* (Adel.); 72, *A. ornatipennis* (Rme.); 73, *Ceraeocercus fuscipennis fuscipennis* Uv.

Female

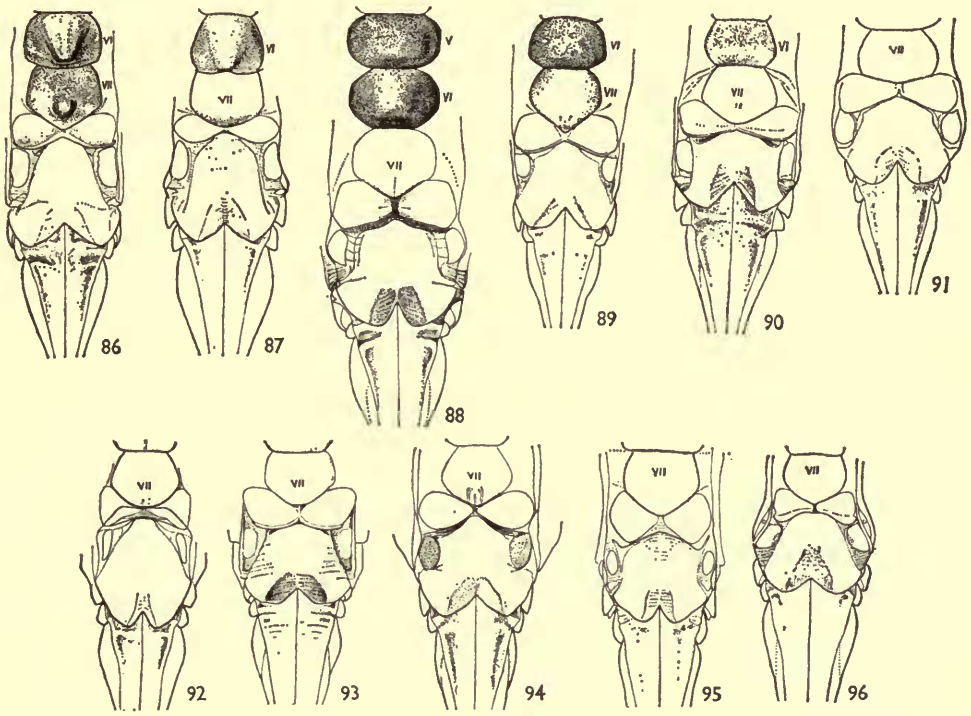
1 (12) VI sternite with a more or less distinct convexity (Text-figs. 86–90).
2 (5) VII sternite with a tubercle or distinct convexity (Text-figs. 86, 87, 97, 98).
3 (4) VI and VII sternites with a distinct tubercle (Text-figs. 86, 97) ; pronotum with typical pattern ; hind femur with a light brown spot on the upper edge near the base, outer surface unicolourous . . . . ***sinuata*** (Ramme)
4 (3) VI sternite with a convexity, VII sternite without tubercle, but its apical part strongly convex (Text-figs. 87, 98) ; pronotum without typical pattern ; hind femur with an elongated black spot on the upper edge near the base and a long black stripe on the middle of outer surface . . . ***uvarovi*** sp. n.
5 (2) VII sternite without tubercle and not strongly convex (Text-figs, 88–90, 99–102).
6 (9) Pronotum with typical pattern.



FIGS. 74–85. ♀ left elytra. 74, *Pezodrymadusa sinuata* (Rme.) ; 75, *P. uvarovi* sp. n.; 76, *P. angorensis* (Uv.) ; 77, *P. affinis* (Bol.) ; 78, *P. diffusa* (Rme.) ; 79, *P. kurmana* (Rme.) ; 80, *P. subinermis* sp. n.; 81, *P. indivisa* sp. n.; 82, *P. striolata* (Rme.) ; 83, *P. konowi* (Bol.) ; 84, *P. magnifica* (Wern.) ; 85, *P. grisea* (Rme.).

7 (8) Ovipositor longer than half of hind femur, stout (Text-fig. 99) ; hind femur with a small brown spot on the upper edge near the base . ***angorensis*** (Uvarov)
8 (7) Ovipositor approximately as long as half of hind femur, slender (Text-fig. 100) ; hind femur with a blackish-brown spot on the upper edge near the base ***affinis*** (I. Bolivar)
9 (6) Pronotum without typical pattern.
10 (11) Pronotum uniformly dirty brown ; apical angle of VII sternite almost acute ; apical lobes of subgenital plate as in Text-fig. 89 ; hind femur unicolourous ; apical part of ovipositor as in Text-fig. 101 . . . ***diffusa*** (Ramme)
11 (10) Upper surface of pronotum, except posterior edge, blackish-brown ; apical angle of VII sternite rounded ; apical lobes of subgenital plate as in Text-fig. 90 ; hind femur with an elongated dark brown spot on the upper edge ; an elongated dark brown stripe on the outer surface ; apical part of ovipositor as in Text-fig. 102 . . . . . ***kurmana*** (Ramme)

12 (1) VI sternite without a convexity (Text-figs. 91–96, 103–108).
13 (14) Elytra (Text-fig. 83) black with a series of whitish spots ; a big black spot on the upper edge of hind femur at the base ; subgenital plate and ovipositor as in Text-figs. 94, 108 . . . . . ***konowi*** (I. Bolivar)
14 (13) Elytra not black, or only outer edge blackish.
15 (22) Pronotum with distinct or very weak typical pattern.
16 (21) Pronotum with distinct typical pattern ; metazona not distinctly flattened. Elytra brown with irregular creamy spots.
17 (18) Ovipositor (Text-fig. 103) shorter than half of hind femur ; hind femur marbled in the basal half . . . . . ***subinermis*** sp. n.

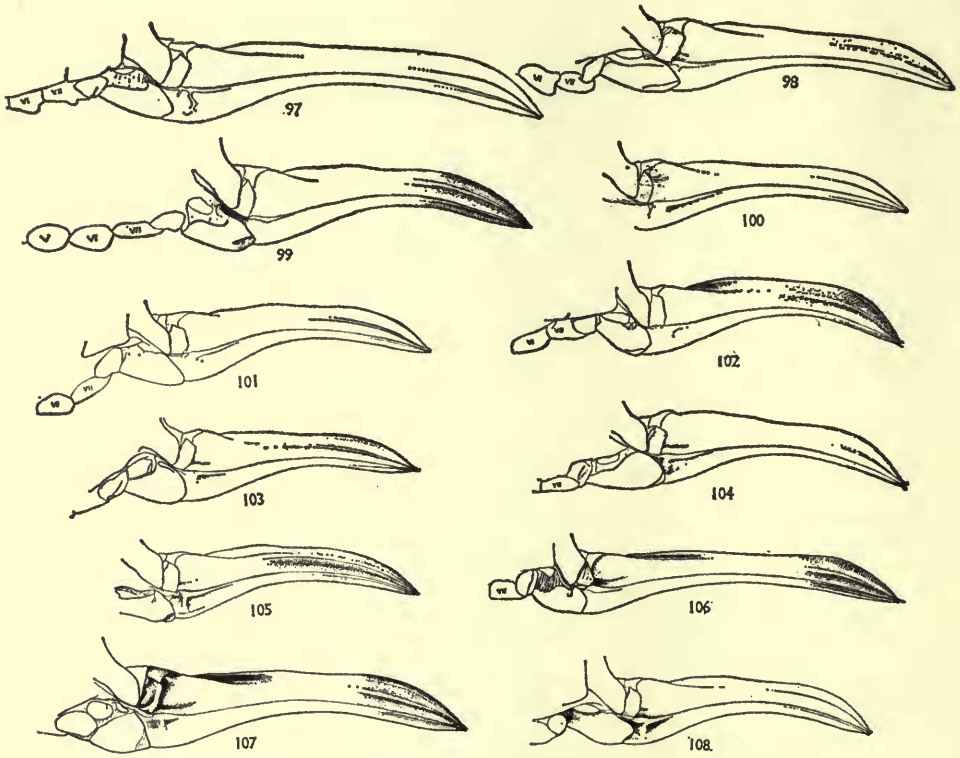


FIGS. 86–96. ♀ bi-concave plate, subgenital plate and basis of ovipositor. 86, *Pezodrymadusa sinuata* (Rme.), VI–VII sternites ; 87, *P. uvarovi* sp. n.; 88, *P. angorensis* (Uv.), V–VII sternites ; 89, *P. diffusa* (Rme.), VI–VII sternites ; 90, *P. kurmana* (Rme.), VI–VII sternites : 91, *P. subinermis* sp. n., VII sternite ; 92, *P. indivisa* sp. n., VII sternite ; 93, *P. striolata* (Rme.), VII sternite ; 94, *P. konowi* (Bol.), VII sternite; 95, *P. magnifica* (Wern.), VII sternite ; 96, *P. grisea* (Rme.), VII sternite.

18 (17) Elytra blackish-brown ; ovipositor longer than half of hind femur ; hind femur with black spots.
19 (20) Elytra (Text-fig. 84) apically black, without light spots ; hind femur with a small black spot on the upper edge of its base and several black spots on the upper half of its outer surface ; subgenital plate as in Text-fig. 107 ; ovipositor very stout . . . . . ***magnifica*** (Werner).
20 (19) Elytra (Fig. 82) not apically black, with irregular light spots ; a blackish-brown spot on the basal part of upper edge of hind femur, outer surface unicolourous ; subgenital plate and ovipositor as in Text-fig. 93, 105 ***striolata*** (Ramme)

21 (16) Pronotum with very weak typical pattern ; metazona distinctly flattened ; elytra (Text-fig. 85) extending a little beyond the middle of second tergite ; hind femur with a big black spot on the basal part of upper edge ; a long blackish-brown spot on the middle of outer surface ; subgenital plate as in Text-fig. 96 ; ovipositor slender (Text-fig. 106), . . . ***grisea*** (Brunner)

22 (15) Pronotum without typical pattern, cylindrical ; elytra (Text-fig. 81) reddish-brown, with few small light spots, outer edges blackish ; hind femur uniformly light brown ; subgenital plate and ovipositor as in Text-figs 92, 104 ***indivisa*** sp. n.



FIGS. 97–108. Ovipositor. 97, *Pezodrymadusa sinuata* (Rme.), VI–VII sternites ; 98, *P. uvarovi* sp. n., VI–VII sternites ; 99, *P. angorensis* (Uv.), V–VII sternites ; 100, *P. affinis* (Bol.) ; 101, *P. diffusa* (Rme.), VI–VII sternites ; 102, *P. kurmana* (Rme.), VI–VII sternites ; 103, *P. subinermis* sp. n.; 104, *P. indivisa* sp. n. VII sternite ; 105, *P. striolata* (Rme.) ; 106, *P. grisea* (Rme.), VII sternite ; 107, *P. magnifica* (Wern.) ; 108, *P. konowi* (Bol.).

1. ***Pezodrymadusa magnifica*** (Werner, 1901)

1901. *Drymadusa magnifica* Werner, *Sitzb. mat.-nat. Cl. K. Akad. Wiss.* **110** : 290.
1922. *Drymadusa magnifica* Ebner, *Acta soc. Entom. Čechoslov.* **20** : 2.
1934. *Drymadusa magnifica* Uvarov, *Eos*, **10** : 46.

♂. Fastigium of vertex a little wider than first antennal segment. Pronotum stout ; no shoulder excision ; posterior margin broadly rounded with a shallow

excision in the middle ; distinct median carina in the second half of metazona. Elytra longer than pronotum. Hind femur stout, relatively long. Last tergite (Text-fig. 45) with a distinct depression on the middle of appendages.

Coloration : Face brownish-white, a distinct black band between eyes ; occiput dark brown ; a wide black stripe behind eye. Pronotum with typical pattern, yellowish-brown ; a wide yellowish-brown stripe on the lateral edge of pronotum ; a big dark brown spot on the middle of lateral lobe, dark brown median stripe ; metazona darker ; elytra reddish-brown, laterally and apically black ; first and second femora with irregular black spots ; near the apical part of first and second femur a black ring ; a black ring on the tympanal region ; a brown ring on the apical part of first and second tibiae ; hind femur with a longitudinal stripe, black spots on the outer surface and irregular black spots above the stripe, a big black spot on the basal edge and dark-smokey spot on the middle of the upper edge ; irregular black spots on the middle of inner surface near upper edge ; a dark brown ring near the apical part ; most of tibial spines with black basal spots. Half of first and second tergites black, some irregular dark brown spots on the lateral surface of third tergite ; 9th tergite laterally blackish-brown, last tergite mostly black ; subgenital plate light brown.

♀. Rather stout ; elytra shorter than pronotum. Coloration as in ♂, but darker.

Length of body, ♂, 26·5–27·3, ♀, 34·5–35 ; pronotum, ♂, 9·5–10·1, ♀, 10·2–10·5 ; elytra, ♂, 10·1–10·6, ♀, 9–9·4 ; fore femur, ♂, 8·4–8·7, ♀, 9–9·2 ; hind femur, ♂, 25·3–25·5, ♀, 27·1–29·2 ; ovipositor, 14·2–16·4 mm.

Specimens examined : Armenia, Ordubat, 1 ♀ (type) (Coll. Br.-W., Coll. Christoph) ; Khoi (NW. Persia, Zugmayer) (Vienna Museum) ; Karmalinovka distr. Nachichevan, 23.vii.17, 1 ♂, 1 ♀ (British Museum).

This species has been described by Werner from three larvae from Samos, and 1 ♀ from Ordubat, and there is no doubt that two species were confused. The Samos species was probably *Paradrymadusa ornatipennis* described by Ramme from that island (*Deut. ent. Zeitschr.* 1926 : 282). Ebner (1922) and Uvarov (1934) discussed this problem and agreed that the female from Ordubat should be regarded as the type of *magnifica* and the name *ornatipennis* becomes available for the Samos species.

I examined the female type from Ordubat and the male from Nachichevan and give here their illustrations.

Shugurov (1911, *Zapiski Novoross. Ob. Est.* **37** : 11) recorded this species from Crimea, but Miram (*Ann. Mus. Zool. Acad. Sci. Leningrad*, 1929 : 461) stated that Shugurov's description applies to *retowskii* (see p. 36). Werner's records of this species from Serai-Dagh and from between Konia and Kaisarie (=Kayseri) based on larvae (*Ann. Naturhist. Hofmus. Wien*, xx : 2) cannot be accepted (Uvarov, t.c.).

2. ***Pezodrymadusa subinermis*** sp. n.

♂ (type). Fastigium of vertex long, widened in the middle, narrowed to the vertex, as wide as first antennal segment. Pronotum relatively short ; first sulcus very distinct, typical sulcus roundly curved a little behind the middle of pronotum ; a large depression on the beginning of metazona ; posterior edge very weakly rounded, lateral carina weakly indicated in the apical part of metazona. Elytra shorter than

pronotum. Hind femur stoutly built, relatively short. Subgenital plate (Text-fig. 91), with deep subacute excision, with short cylindrical styli.

General coloration dirty brown ; face light brown, blackish band between eyes ; occiput dark brown, some dark brown stripes behind antennal sockets and eyes ; pronotum with typical pattern, but its upper surface light brown and lateral lobes dark brown, two median short, parallel, black stripes on the prozona, typical sulcus distinctly brown, behind it two parallel brown median lines ; lateral edge of lobes with a wide light band, posterior margin with a narrow dark brown stripe ; elytra reddish-brown, with irregular light spots ; a very pale dark brown ring near the apical part of femora and tibiae ; hind femur with a small elongated dark brown spot on the basal upper edge, upper edge and inside of the femur slightly marbled.

♀. As ♂, but pronotum more slender ; elytra (Text-fig. 80) much shorter than pronotum. Ventral plate with very wide depression, its median carina low. Subgenital plate with acutangular excision, round which there is a depression ; ovipositor shorter than half of hind femur, its basal part stoutly built, apical part slender (Text-fig. 103).

Coloration as in ♂.

Length of body, ♂, 26·9, ♀, 27·1–28 ; pronotum, ♂, 8·1, ♀, 7·9–8 ; elytra, ♂, 7·8, ♀, 6·1–6·4 ; fore femur, ♂, 7·5, ♀, 7·9–8·1 ; hind femur, ♂, 24·9, ♀, 25·6–26·6 ; ovipositor, 12·1 mm.

Specimens examined : E. Turkey : Elazig, Sivrice, 12.vi.1952, 1 ♂ (type), 15.vi., 16.vii.1952, 2 ♀ (Ö. K. Gülen).

This new species is related to *P. konowi* (Bol.), but differs from it by being more stout and by pronotum with typical pattern which is absent in *P. konowi*, by the colour of elytra and by the shape of ♂ cercus.

3. ***Pezodrymadusa konowi*** (I. Bolivar, 1899)

1899. *Drymadusa konowi* I. Bolivar, *Ann. Soc. ent. Belg.* **43** : 600.
1939. *Drymadusa konowi* Ramme, *Mitt. Zool. Mus. Berlin*, **24** (1) : 68.

♂. Fastigium of vertex a little wider than first antennal segment. Pronotum cylindrical. Elytra shorter than pronotum, extending almost to the end of 2nd tergite. Appendages of last tergite (Text-fig. 47) narrow and very acute ; subgenital plate with widely rounded excision, styli cylindrical.

General coloration reddish-brown, face creamy brown ; a very distinct band between eyes ; occiput as face ; a wide black stripe behind eye ; pronotum unicolourous, pronotal lobes of some specimens have light edges ; elytra black with irregular ivory-white spots ; legs unicolourous, a large elongate black spot on the basal upper edge and a brown elongate stripe on the outer side of hind femur, inside of hind femur unicolourous ; basal part of last tergite blackish-brown.

♀. As ♂, but larger, pronotum stouter and more convex in profile. Elytra (Text-fig. 83) much shorter than pronotum, extending to the middle of 2nd tergite. Hind femur stouter. Ventral plate relatively small, with a short and stout median carina ; subgenital plate (Text-fig. 94) wider than long. Ovipositor (Text-fig. 108)

much longer than half the hind femur, its middle part narrowed, gradually downcurved.

Coloration as in ♂, first thirds of tergites blackish-brown ; upper basal part of ovipositor blackish-brown.

Length of body, ♂, 25–29, ♀, 28·9–31 ; pronotum, ♂, 8–9, ♀, 8·5–9·4 ; elytra, ♂, 7·3–8, ♀, 5–7 ; fore femur, ♂, 7, ♀, 7·9 ; hind femur, ♂, 22–23, ♀, 23·8–25·2 ; ovipositor, 12·4–13·8 mm.

Specimens examined : S. Turkey : Marach (=Maraş), Bimbogha-Dagh (=Binbuğa dağı), 1 ♂, 1 ♀ (type) (Escalera) (Madrid Museum) ; Maras, 1931, 1 ♀ (E. Cold) (British Museum) ; Elazig : Helezür Köyü, 16.vii.1952, 1 ♂, Elazig : Sivrice, 9.vi.1951, 8 ♂, 23 ♀ (Ö. K. Gülen) (Zoological Institute, University of Ankara).

Ramme (1939) mentioned also 1 ♀ from Akbes in Syria.

4. ***Pezodrymadusa indivisa*** sp. n.

1958. *Drymadusa kurmana* Karabag, *Orthop. Faun. Turkey* : 48 (*nec* Ramme).

♂ (type). Slender. Fastigium of vertex almost as wide as first antennal segment, with very shallow and fine median sulcus above. Pronotum cylindrical, relatively short, posterior margin very broadly rounded ; lateral carina very weak, only in metazona ; shoulder excision almost absent ; first sulcus distinct ; typical sulcus very weak, roundly curved at the middle of pronotum. Elytra shorter than pronotum, reaching middle of 2nd tergite. Legs slender and relatively short. Appendages of last tergite as Text-fig. 48 ; cercus (Text-fig. 29) cylindrical, weakly incurved at the last third, its apical part acute ; subgenital plate with a rounded excision, styli cylindrical, short.

General coloration light brown, face much lighter, blackish band between eyes distinct ; occiput very weakly marbled ; pronotum reddish-brown, without typical pattern, no blackish stripe on outer posterior margin ; lateral edges of pronotal lobes with indistinct light brown stripe ; elytra dark reddish-brown, with few light spots and blackish lateral edge ; legs unicolourous, hind femur without black spots ; tergites unicolourous.

♀. Stouter. Elytra (Text-fig. 81) much shorter than pronotum, extending a little beyond first tergite. Hind femur much stouter and longer than in ♂ ; VI sternite flattened, VII sternite weakly convex ; ventral plate (Text-fig. 92) not very wide ; subgenital plate with acutangular excision, and a longitudinal median depression ; ovipositor a little longer than half the hind femur, gradually downcurved, its middle distinctly broad.

Coloration as in ♂, but a little darker ; occiput distinctly marbled ; pronotum dark reddish-brown ; light stripe at the edge of lateral lobes more distinct. Elytra with small pale spots, and black edges. Ovipositor without dark pattern.

Length of body, ♂, 28·3, ♀, 29 ; pronotum, ♂, 7·7, ♀, 8·8 ; elytra, ♂, 6·1, ♀, 6 ; fore femur, ♂, 6·6, ♀, 7·4 ; hind femur, ♂, 23·8, ♀, 25·6 ; ovipositor, 13·1 mm.

Specimen examined : E. Turkey : Van, Gavaş (Gevaş) distr. Artos dag, 8,000 ft., 15.vii.1954, 1 ♂ (type), 1 ♀ (P. H. Davis).

This new species is allied to *P. kurmana* Ramme, but differs from it by the colour of occiput, pronotum and elytra, shape of cercus and titillator, colour of hind femur and structure of ovipositor.

5. ***Pezodrymadusa kurmana*** (Ramme, 1939)

1939. *Drymadusa kurmana* Ramme, *Mitt. Zool. Mus. Berlin*, **24** (1) : 69.
1951. *Drymadusa kurmana* Ramme, *Mitt. Zool. Mus. Berlin*, **27** : 358.

♂. Fastigium of vertex a little wider than first antennal segment, with a short and distinct median sulcus. Pronotum cylindrical, relatively small ; its posterior edge very broadly rounded ; lateral carina rounded, but distinct in metazona ; first sulcus distinct ; typical sulcus roundly curved a little behind the middle of pronotum ; shoulder excision almost absent. Elytra shorter than pronotum, extending a little beyond 2nd tergite. Hind femur short. Appendages of last tergite (Text-fig. 49) slightly (in some specimens strongly) divergent ; cercus cylindrical, very weakly incurved in last third (Text-fig. 30) ; subgenital plate with wide round excision, styli very short.

General coloration ochre-brown ; face light brown ; black band between eyes very distinct ; occiput blackish-brown ; two wide blackish-brown stripes behind eye ; upper surface of pronotum black or blackish-brown, except wide posterior edge ; posterior margin with a narrow blackish-brown edge ; lateral lobes light reddish-brown, with a light creamy posterior edge ; elytra reddish-blackish-brown, apical part blackish-brown, with irregular round light spots ; femora near apex with a very pale dark brown ring ; or with long blackish-brown spot on the basal upper edge of hind femur, a long dark brown stripe on inner and outer sides ; tergites unicolourous, only apical edges dark brown.

♀. Pronotum more convex in profile than in ♂. Elytra (Text-fig. 79) much shorter than pronotum, extending to the middle of 2nd tergite. Hind femur longer, and stouter ; VI sternite distinctly convex, ventral plate wide ; subgenital plate wider than long, with a deep acutangular excision (Text-fig. 90) ; ovipositor a little longer than half the hind femur, stout, not widened in the middle (Text-fig. 102).

Coloration as in ♂, but darker ; basal upper edge of ovipositor blackish.

Length of body : ♂, 25–25·8, ♀, 27–27·2 ; pronotum, ♂, 7·1–7·6, ♀, 8–8·4 ; elytra, ♂, 5·7–6·7, ♀, 5·7–5·9 ; fore femur, ♂, 6·5–6·7, ♀, 7·6 ; hind femur, ♂, 22–22·9, ♀, 24·6–25·2, ovipositor, 12·1–13 mm.

Specimens examined : SE. Turkey : Malatya Mountains near Yukaribanassiya (=Yukaribanazi), 1,100–1,600 m., 6 and 7.vii.37, ♂ (*type*), ♀ (W. Ramme) (Berlin Museum), 1 ♂ (British Museum).

6. ***Pezodrymadusa lata*** sp. n.

♂ (type). Fastigium of vertex a little wider than first antennal segment, with a distinct median sulcus. Pronotum cylindrical, its posterior margin broadly rounded, lateral carina distinct in the last half of metazona ; first sulcus distinct, typical sulcus roundly curved behind middle of pronotum. Elytra almost as long as pronotum, extending to the end of 2nd tergite. Legs slender ; hind femur relatively short

and not very stout. Appendages of last tergite (Text-fig. 50) divergent, cercus cylindrical, slightly incurved, with acute apical spine ; subgenital plate with widely rounded excision, styli cylindrical and very short.

General coloration greyish-brown, face greyish-white ; black band between eyes ; first antennal segment dark brown ; occiput grey ; two longitudinal parallel blackish stripes near the middle; pronotum grey, without typical pattern, lateral edges of pronotal lobes creamy ; black spot on the lateral corner of metazona ; elytra brown, with a large elongated whitish spot on the posterior edge, and some small irregular light spots ; anterior edge darker. Upper surface of femora a little darker than the lower ; hind femur without black or dark brown spots. Tergites marbled ; subgenital plate creamy.

Length of body, 28 ; pronotum, 7·9 ; elytra, 7·8 ; fore femur, 7·1 ; hind femur, 25·1 mm.

Specimen examined : E. Turkey : Bingöl, Karliova, Kürük Köyü, 6.viii.1954, 1 ♂ (type) (N. Şişli).

This new species is allied to *P. kurmana* but differs from it by colour of pronotum, longer elytra, with elongate whitish spot on their posterior edge ; absence of black spot on the basal upper edge of hind femur, and by the structure of cercus and titillator.

7. ***Pezodrymadusa uvarovi*** sp. n.

♂ (type). Fastigium of vertex a little wider than first antennal segment, with very shallow median sulcus. Pronotum cylindrical, relatively short ; its posterior edge broadly rounded ; lateral carina very weak at the corner of metazona ; first sulcus distinct ; typical sulcus roundly curved behind middle of pronotum. Elytra longer than pronotum, extending to the end of 3rd tergite ; hind femur short and stout. Appendages of last tergite long, spine-like, divergent (Text-fig. 51) ; cercus stout (Text-fig. 32) ; titillator stout (Text-fig. 62) ; subgenital plate longer than wide, with acutangular excision, styli cylindrical, small.

General coloration light brown, or greyish-brown ; face dirty light brown ; black band between eyes very distinct ; outer sides of first and second segment of antenna black ; surrounding the eye black ; occiput of ground colour, without pattern ; pronotum light brown, lateral edges of pronotal lobes lighter, posterior margin of pronotum reddish-brown ; elytron reddish-brown, with irregular creamy spots ; basal parts of femoral spines black, near the apices of femora dark brown ring ; large elongated black spot on the basal upper edge and a longitudinal black spot, widening apically, a small elongate black spot near upper edge of inside of hind femur ; apical edge of V–VIIIth tergites dark brown (in other specimens pale striped with reddish-brown).

♀. Pronotum more slender, elongate and more convex in profile ; its posterior margin more broadly rounded (some specimens have a weak median carina on the last half of metazona). Elytra (Text-fig. 75) shorter than pronotum. Subgenital plate longer than wide, with acutangular excision ; ovipositor longer than half of

hind femur, slender, its upper edge almost straight, lower edge regularly down-curved (Text-fig. 98).

Coloration as in ♂, but a little darker, elytra darker, with a large elongate whitish spot near the inner edge and some small light spots in the middle.

Length of body, ♂, 27 (type)—32·4, ♀, 30–31·5 ; pronotum, ♂, 8·1 (type), ♀, 9–10·1 ; elytra, ♂, 9·2 (type), ♀, 6·2–8·1 ; fore femur, ♂, 7–8·2 (type), ♀, 8·3–9·1 ; hind femur, ♂, 26 (type), ♀, 25·3–26·9 ; ovipositor, 15 mm.

Specimen examined : E. Turkey : Tunceli, Nazimiye, 8.vii.1952, 4 ♂ (including type), 2 ♀ (Ö. K. Gülen).

I have much pleasure in dedicating this new species to Dr. B. P. Uvarov, who has done outstanding work on Orthoptera.

This new species differs from others by the structure of cercus and titillator of ♂, and by tubercle on the VIth sternite of ♀.

8. ***Pezodrymadusa sinuata*** (Ramme, 1951)

1951. *Drymadusa sinuata* Ramme, *Mitt. Zool. Mus. Berlin*, **27** : 357.

♂. Pronotum cylindrical, rather elongate, posterior margin almost semicircular ; lateral carina very weak at the corner of metazona. Elytra extending to the end of 2nd tergite.

Face light ; dark brown band between eyes ; pronotum with distinct typical pattern, and broad blackish median stripe ; elytra reddish-brown, without light spots, a dark brown ring near the apical part of femora ; hind femur with a big dark spot on the basal upper edge.

♀ (type). Fastigium of vertex almost as wide as first antennal segment, with a median sulcus. Pronotum more elongate, cylindrical, posterior edge almost semicircular ; a weak median carina on the last half of metazona ; pro- and metazona of lateral lobes with a wide convexity. Elytra (Text-fig. 74) shorter than pronotum. Appendages of anal tergite long (Text-fig. 52) ; ovipositor long, gradually down-curved (Text-fig. 97).

General coloration light brown, face whitish-brown, a dark brown band between eyes ; elytra with light irregular spots.

Length of body, ♂, ♀, 32·7; pronotum, ♂, 8, ♀, 10 ; elytra, ♂, 9, ♀, 7·5 ; hind femur, ♂, 21, ♀, 26 ; ovipositor, 18·6 mm.

Specimens examined : E. Turkey : Sivas, Kizil Dagh (between Suşehri and Zara), 1930, 1 ♀ (type) (Şevket Tuncok) ; Sivas, vii.1934, 1 ♂ (Rosenbohm) (Berlin Museum),

Ramme (1951) described the species from a single ♀. The female characters are very good ; the tubercle of VI and VIIth sternites and the length of ovipositor separate this species from *P. striolata*. The male from Sivas is in very bad condition, large part of abdomen and titillator being absent ; only the right cercus present and it is similar to that of *P. striolata*, though a little different from it. Until more specimens are available it is still doubtful whether the male belongs to *P. sinuata* or *P. striolata*.

9. ***Pezodrymadusa grisea*** (Brunner-Wattenwyl, 1882)

1882. *Drymadusa grisea* Brunner-Wattenwyl, *Prodr. eur. Orthopt.* : 315.

♂. Fastigium of vertex wider than first antennal segment, with a shallow median sulcus. Pronotum with weakly convex prozona and flattened metazona ; lateral carina distinct in metazona ; its posterior margin almost straight ; first sulcus very distinct ; typical sulcus roundly curved before the middle of pronotum ; no shoulder excision. Elytra longer than pronotum. Hind femur relatively short, but stout. Subgenital plate longer than wide, with a deep and acutangular excision, styli short.

Face lighter and unicolourous ; black band between eyes very distinct ; outer surface of first and second segments of antenna blackish ; black postocular stripe with a white spot just behind ; occiput brown, a black median stripe on the pronotum, lateral edge of pronotal lobes lighter, lateral corner of metazona and middle of its posterior margin black. Elytra reddish-brown, without light spots. A dark brown ring near the apices of femora, a blackish-brown ring near the base of upper edge of hind femur, a black stripe along the middle of outer surface and a blackish-brown stripe on the lower edge of hind femur. Second half of I, II and III tergites blackish, the rest of them laterally with short transverse black stripes.

♀. Pronotum more slender ; elytra (Text-fig. 85) shorter than pronotum. Ovipositor (Text-fig. 106) slender, longer than half of hind femur, its upper edge almost straight, lower edge regularly down-curved.

Coloration as in ♂.

Length of body, ♂, 26·4–30, ♀, 25·2–26·2 ; pronotum, ♂, 8·3–9·2, ♀, 8·2–9 ; elytra, ♂, 12, ♀, 7·2–8·6 ; fore femur, ♂, 7·7–8·1, ♀, 7·1–7·8 ; hind femur, ♂, 23–26, ♀, 22·2–23·1 ; ovipositor, 16–16·4 mm.

Specimens examined : Iran : Hadschyabad, 1 ♂ (type), 1 ♀ (Coll. Br. V. W., ex. Coll. Lederer), 8170 (Vienna Museum) ; Tal von Kamrud (Mazand.), 17–2,000 m., 23.vi., 1 ♂ (Coll. P. Aellen, 1948), 1950–615 ; Shahrud (NE. Persia), 30.v.914, 1 ♀ (Kiritshenko) (British Museum).

The structure of pronotum, the shape and length of ovipositor in this species are reminiscent of *Paradrymadusa*, but other characters are as in *Pezodrymadusa*.

10. ***Pezodrymadusa diffusa*** (Ramme, 1951)

1951. *Drymadusa diffusa* Ramme, *Mitt. Zool. Mus. Berlin*, **27** : 356.

♂. Face whitish-grey, dark brown band between eyes. Posterior edge of pronotum almost straight, greyish-brown marbled. Elytra shorter than pronotum, blackish-brown, with some oval spots. Femora greyish-brown.

♀ (type). Elytra (Text-fig. 78) shorter than pronotum. Ovipositor longer than half of hind femur, stout, regularly down-curved (Text-fig. 101).

Length of body, ♂, 24·5, ♀, 29 ; pronotum, ♂, 9·2, ♀, 9·3 ; elytra, ♂, 8, ♀, 6·7 ; hind femur, ♂, 22·1, ♀, 22·4 ; ovipositor, 13·8 mm.

Specimens examined : S. Turkey : Ulukişla, 1,400–1,600 m., 17.vii.1937, 1 ♀ (type) (W. Ramme) ; Dümbelek Dagh, 1 ♂ allotype, (Collector ?) (Berlin Museum).

This species is very similar to *P. striolata* in the shape of cercus and ovipositor, differing mainly by colour and especially by the typical pattern of pronotum.

The last tergite of the ♂ is much damaged, and the titillator is absent. The species will remain doubtful, until more specimens are available.

11. ***Pezodrymadusa striolata*** (Ramme, 1951)

1951. *Drymadusa striolata* Ramme, *Mitt. Zool. Mus. Berlin*, **27** : 355.

♂. Elytra a little shorter than pronotum, extending nearly to the end of third tergite. Subgenital plate almost as long as wide.

♀. Elytra (Text-fig. 82) extending to the middle of second tergite, shorter than pronotum. Ovipositor (Text-fig. 105) longer than half of hind femur.

Face whitish-brown, a big brown spot on the occiput ; black band between eyes ; black stripe behind eye ; two fine black and parallel median lines on the pronotum ; transverse blackish spot on the metazona ; yellowish-brown transverse band near posterior edge of metazona. Elytra dirty brown, with some light spots. Abdomen and legs uniformly brown.

Length of body, ♂, 30·6, ♀, 32·2 ; pronotum, ♂, 9·1, ♀, 9·9 ; elytra, ♂, 9, ♀, 7·2 ; hind femur, ♂, 22·1, ♀, 23 ; ovipositor, 13 mm.

Specimens examined : S. Turkey : Nigde, Ütsch Kapular (=Üçkapular) Dagh, 18, 21 and 24.vii.1937, 1 ♂ (type), 1 ♀ (paratype) (W. Ramme) (Berlin Museum).

12. ***Pezodrymadusa angorensis*** (Uvarov, 1930)

1930. *Drymadusa angorensis* Uvarov, *Eos*, **6** : 353.

♂. Metazona short, weakly convex ; shoulder excision weak, rounded. Elytra reaching the apex of the third tergite. Subgenital plate obtusely excised behind.

General coloration pale brown (some specimens light brown with dark brown pattern). Face uniformly pale (in some specimens light creamy) ; black fascia between eyes ; black line on the middle of metazona extending to its end ; indistinct typical pattern on the pronotum (in some specimens very distinct) ; (some specimens have light edge of lateral pronotal lobes) ; elytra with brownish (some specimens greenish-creamy) with lighter spots. A pale brown ring near the apices of femora ; a blackish-brown spot on the upper basal edge of hind femur. Tergites with blackish design (some specimens with blackish-brown and whitish spots on the tergites).

♀. Robust. Pronotum stout ; elytra (Text-fig. 76), reaching middle of second tergite. Subgenital plate with acutangular excision, surrounded by a depression ; ovipositor (Text-fig. 99) very stout, regularly down-curved.

Coloration darker than in ♂, typical pattern on the pronotum very distinct.

Length of body, ♂, 31–32·5, ♀, 33·1–36·6 ; pronotum, ♂, 9–10, ♀, 9·8–10·9 ; elytra, ♂, 8·2–10, ♀ 7·4 ; fore femur, ♂, 7·1–7·8, ♀, 8·9 ; hind femur, ♂, 22·8–23·7, ♀, 25·1–27·6 ; ovipositor, 13·8–14·3 mm.

Specimens examined: Turkey: Ankara, Beypazari, 1 ♂ (type) (Sureya Bey); Asia Minor: between Ankara and Changri (=Çankiri), Kai-Dagh, 10.vii.1931, 2 ♀ (B. P. Uvarov) (British Museum); Ankara: Etlik, 19.vii.1939, 1 ♂, 2 ♀; Ayaşbeli, 11.vii.1939, 1 ♂, 1 ♀; Hacikadin deresi, 22.vi.1948; 1 ♂ (T. Karabag) (Zoological Institute, University of Ankara); Hasanoglan, 130 km., from Ankara, 8.vii.1959, 1 ♀ (K. Guichard) (British Museum).

Ramme (1951) recorded this species from Ankara, Emir-Göl, 1936, 1 ♀ (M. Tolunay).

13. ***Pezodrymadusa affinis*** (I. Bolivar, 1899)

1899. *Drymadusa affinis* I. Bolivar, *Ann. Soc. ent. Belg.* **431**: 601.

♀. Pro- and metazona of pronotum convex, metazona weakly flattened; shoulder excision shallow; posterior edge of pronotum very broadly rounded. Elytra (Text-fig. 77) very small, extending to the end of first tergite. Hind femur relatively short, slender. Ovipositor (Text-fig. 100) relatively short, regularly down-curved.

General coloration light brown, face unicolourous (but a dark brown band on the face); dark brown fascia between eyes distinct; longitudinal brown stripe behind eye; typical pronotal pattern distinct, a longitudinal median dark brown stripe on the pronotum; elytra dark brown, with irregular light spots; legs light brown, a big blackish-brown spot on the basal upper edge of hind femur.

Length of body, 30–30·8; pronotum, 9·8; elytra, 5; fore femur. 8–9·1; hind femur, 24·9–25·1; ovipositor, 12·4–13 mm.

Specimens examined: S. Turkey: Bimbogha-Dagh (=Binbuğa dağı), 1 ♀ (type) (Escalera) (Mus. Madrid); Ütch-Kapular Dag (=Üçkapular daiğ), Nigde, S. Anatolia, 900–1,400 m., 18., 21. and 28.vii.1937, 1 ♀ (W. Ramme) (British Museum).

Ramme (1951) discussed this species, and compared it with *P. angorensis*.

Bolivar described this species from a single female. Abdomen of the type is in bad condition, and Text-fig. 100 is that of a female from Ütch-Kapular Dagh, determined by Ramme. Until more specimens of both sexes are obtained the status of this species will be uncertain.

IV. ***ANADRYMADUSA*** gen. n.

Type: *Drymadusa spinicercis* (Karabag, 1956).

Fastigium of vertex with fine median sulcus. A black transverse fascia between eyes. First sulcus of pronotum distinct, typical sulcus almost in the middle of pronotum; a transverse depression behind the typical sulcus; median carina absent or very weak. Elytra fully developed (except *A. brevipennis*, *A. retowskii*, *A. ornatipennis*, *A. albomaculata*).

♂. Appendages of last tergite long, spine-like (except *A. adzharica*). Cercus mostly very long and with enlarged basal articulation. Subgenital plate with deep roundly-angular excision.

♀. Last tergite with long spine-like appendages. Between VII sternite and subgenital plate there is a bi-concave ventral plate (except *A. retowskii*). Subgenital plate with a deep acutangular or subacute excision. Ovipositor very long, almost straight or slightly down-curved.

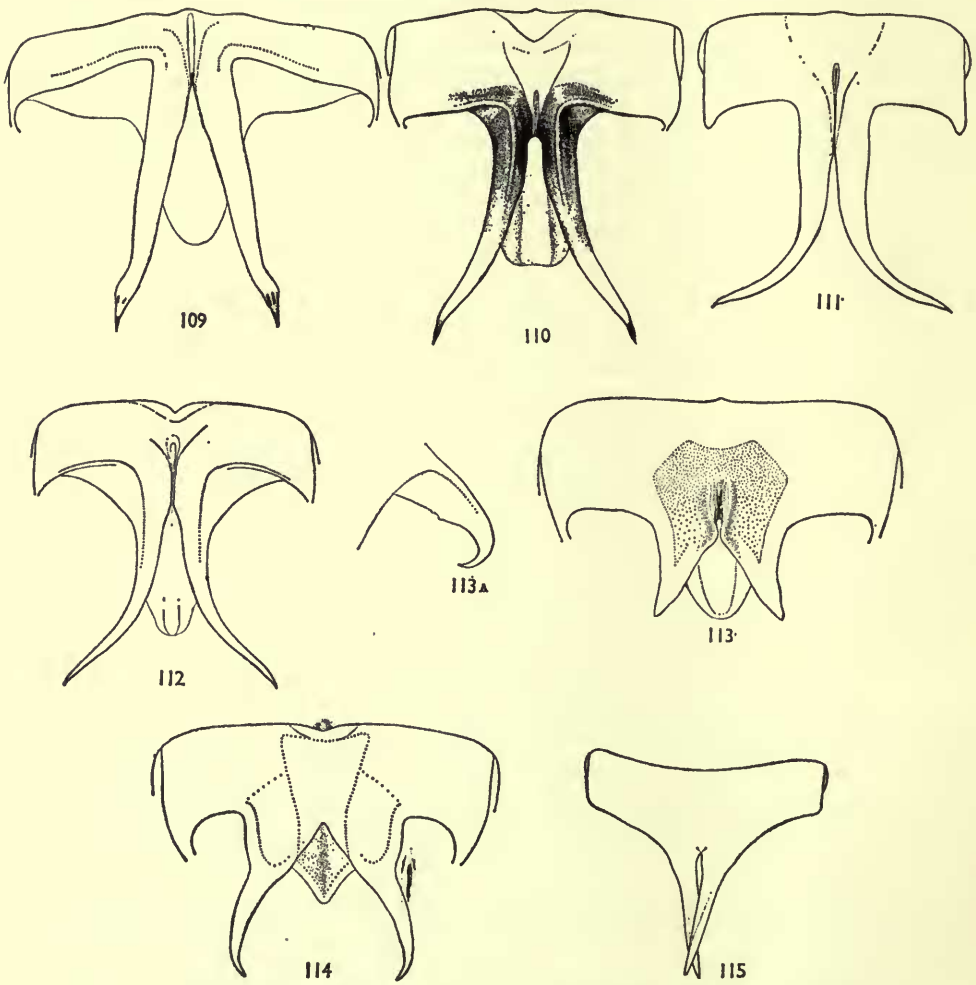
DISTRIBUTION. Greek islands (Syra and Samos) ; Turkey ; Caucasus ; Iran and Crimea.

Three species : *retowskii*, *adzharica* and *ornatipennis* are included in this genus with some hesitation.

KEY TO SPECIES

Male

1 (8) Appendages of last tergite very long, spine-like and strongly divergent (Text-figs. 109–111).



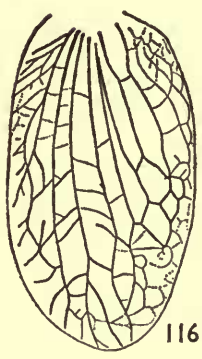
FIGS. 109–115. ♂ last tergite. 109, *Anadrymadusa brevipennis* (Br.-W.) ; 110, *A. spinicercis* (Karab.) ; 111, *A. recticauda* (Wern.) ; 112, *A. curvicercis* (Uv.) ; 113, *A. adzharica* (Uv.) ; 113A, apical part of last tergite in profile ; 114, *A. retowskii* (Adel.) ; 115, *A. ornatipennis* (Rme.).

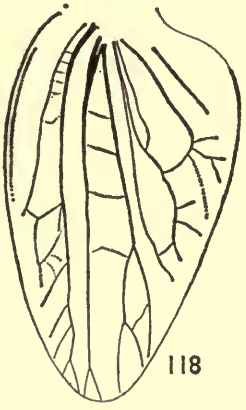
2 (3) Elytra shorter than pronotum; last tergite very narrow, its appendages swollen near apices, with a long and strong apical tooth (Text-fig. 109); cercus very long, rectangularly curved, length of its apical part almost equal to the basal part, with a long and strong apical tooth (Text-fig. 42); basal branches of titillator narrow, median branches compressed laterally, with a double line of strong numerous spines (Text-fig. 66) . . . 1. ***brevipennis*** (Br.-W.)

3 (2) Elytra much longer than pronotum (or much longer than abdomen); last tergite not very narrow.

4 (5) External margin of wings infumate; IX tergite with acutangular projection, appendages of last tergite as Text-fig. 112; cercus very long, slender, strongly upcurved, its apical part much longer than basal, with a small apical tooth (Text-fig. 43); basal branches of titillator fused, median branches with strong spines (Text-fig. 67) . . . . . 2. ***curvicercis*** (Uvarov)

5 (4) External margin of wings not infumate; IX tergite without a median acutangular projection.





FIGS. 116–119. ♀ left elytra. 116, *Anadrymadusa brevipennis* (Br.-W.); 117. *A. retowskii* (Adel); 118, *A. ornatipennis* (Rme.); 119, *A. albomaculata* (Karab.).

6 (7) Elytra much longer than abdomen; appendages of last tergite strongly divergent, but apically incurved (Text-fig. 110); cercus conical, with a large tooth before the apex (Text-fig. 38); basal branches of titillator as in Text-fig. 68, median branches covered with dense teeth . . 3. ***spinicercis*** (Karabag)

7 (6) Elytra shorter or a little longer than abdomen; appendages of last tergite strongly divergent behind middle (Text-fig. 111); cercus obtusangularly incurved with a distinct convexity near its middle and a strong apical tooth (Text-fig. 44); basal branches of titillator slender, median branches with a line of strong teeth (Text-fig. 69) . . . . 4. ***recticauda*** (Werner)

8 (1) Appendages of last tergite not very long, down-curved, incurved, or straight (Text-figs. 113–115).

9 (10) Elytra shorter than pronotum; appendages of last tergite incurved in half circle (Text-fig. 114); cercus upcurved also in half circle (Text-fig. 40); titillator small and very slender, median branches with few spines (Text-fig. 71) 5. ***retowskii*** (Adelung)

10 (9) Elytra longer than pronotum; appendages of last tergite divergent or straight (Text-fig. 113, 115); cercus slightly or strongly incurved (Text-fig. 41, 42); titillator stout (Text-figs. 70, 72).

11 (12) Appendages of last tergite strongly decurved (Text-figs. 113, 113A); cercus slightly incurved, with a distinct swelling at the last third of inside, and a strong apical tooth (Text-fig. 41), median branches of titillator with strong teeth (Text-fig. 70) . . . . . 6. ***adzharica*** (Uvarov)

12 (11) Appendages of last tergite straight (Text-fig. 115); cercus strongly incurved, with a distinct knee at the last third and a strong apical tooth (Text-fig. 42); median branches of titillator long, with large teeth at the median line (Text-fig. 72) . . . . . 7. ***ornatipennis*** (Ramme.)

Females

1 (8) Elytra longer than half of body.

2 (3) External margin of wings distinctly infumate; IV–VII sternites convex posteriorly; bi-concave ventral plate longer than subgenital plate, with a large median carina; lobes of subgenital plate with straight apical edge (Text-fig. 128) . . . . . ***curvicercis*** (Uvarov)

3 (2) External margin of wings not infumate.

4 (5) Elytra extend beyond the hind knee; bi-concave ventral plate much shorter than subgenital plate, its median carina short; subgenital plate much longer than wide (Text-fig. 124) . . . . . ***spinicercis*** (Karabag)

5 (4) Elytra do not reach the hind knee.

6 (7) V sternite without two swellings; VII sternite strongly convex in the apical part; bi-concave ventral plate much shorter than subgenital plate; subgenital plate longer than wide (Text-fig. 130); ovipositor longer than 2½ times the pronotum, straight . . . . . ***recticauda*** (Werner)

7 (6) V sternite with two swellings posteriorly; VII sternite very narrow with a low convexity; ovipositor shorter than 2½ times the pronotum, its upper edge straight, lower edge slightly concave . . . . . ***adzharica*** (Uvarov)

8 (1) Elytra shorter than half of body.

9 (12) Elytra equal to or longer than pronotum.

10 (11) Elytra as in Text-fig. 119; appendages of last tergite long (Text-fig. 123); V–VII sternites with a shallow median furrow, subgenital plate with a weak furrow in the apical half (Text-fig. 126) . . . . . ***albomaculata*** (Karabag)

11 (10) Elytra as in Text-fig. 118; appendages of last tergite short, V–VII sternites with a very distinct and wide median furrow; subgenital plate with a very distinct median furrow (Text-fig. 127) . . . . ***ornatipennis*** (Ramme)

12 (9) Elytra shorter than pronotum.

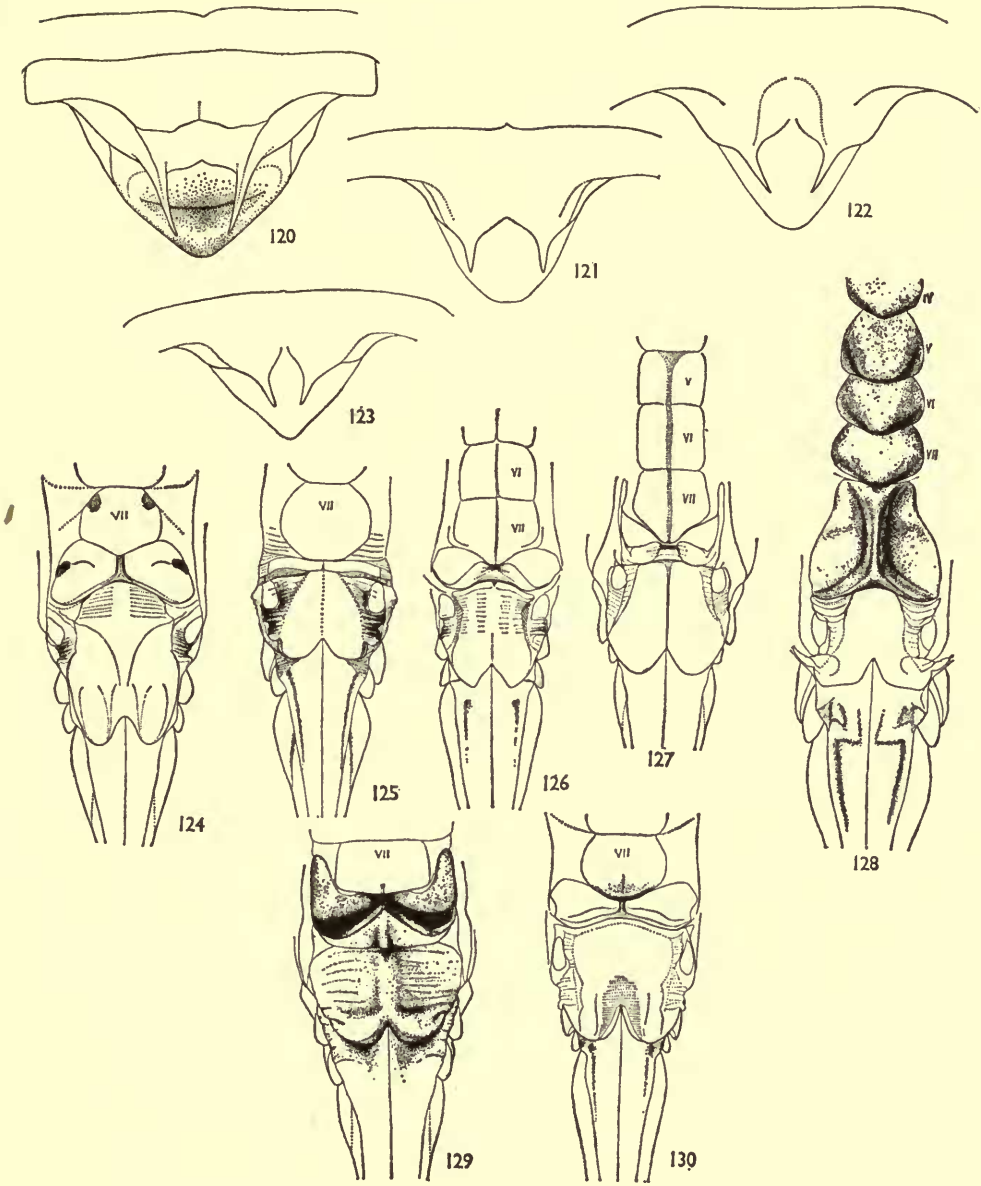
13 (14) Bi-concave ventral plate present, subgenital plate with median and apical swelling (Text-fig. 129); ovipositor stout and straight ***brevipennis*** (Brunner)

14 (13) Ventral plate not bi-concave but a single transverse shiny structure; subgenital plate with a weak median carina (Text-fig. 125); ovipositor slightly down-curved . . . . . ***retowskii*** (Adelung)

1. *Anadrymadusa brevipennis* (Br.-W., 1882)

1882. *Drymadusa brevipennis* Brunner-Wattenwyl, *Prodr. eur. Orthopt.*: 314, 315.

Pronotum robust, its posterior edge rounded, first sulcus distinct, typical sulcus very weak, roundly curved nearly at the middle of pronotum. ♂ subgenital plate longer than wide, with rounded shallow excision, styli long and slender. ♀ elytra as in Text-fig. 116.



FIGS. 120–130. ♀. 120, *Anadrymadusa curvicercis* (Uv.), appendages of last tergite ; 121, *A. spinicercis* (Karab.), ditto ; 122, *A. recticauda* (Wern.) ; 123, *A. albomaculata* (Karab.), ditto. 124–130, bi-concave plate, subgenital plate and basis of ovipositor. 124, *A. spinicercis* (Karab.), VII sternite ; 125, *A. retowskii* (Adel.), VII sternite ; 126, *A. albomaculata* (Karab.), VI–VII sternites ; 127, *A. ornatipennis* (Rme.), V–VII sternites ; 128, *A. curvicercis* (Uv.), IV–VII sternite ; 129, *A. brevipennis* (Br.-W.), VII sternite ; 130, *A. recticauda* (Wern.), VII sternite.

General coloration reddish-brown, face unicolourous, typical fascia between eyes indistinct, some brown spots behind eyes, a long and narrow black spot on the lateral side of metazona.

♂ hind femur with some blackish-brown short stripes in two lines on the basal upper edge, ♀ with smaller blackish-brown spots on the basal upper edge of hind femur.

Length of body, ♂, 31·4–34, ♀, 36–38·4 ; pronotum, ♂, 11, ♀, 11–11·8 ; elytra, ♂, 9–10, ♀, 9–9·3 ; fore femur, ♂, 9–9·1, ♀, 9·6–9·9 ; hind femur, ♂, 26–28, ♀, 29–30·1 ; ovipositor, 21·5–22·4 mm.

Specimens examined : Greek islands : Syra, 2 ♂, 2 ♀ (Coll. Br.) (Mus. Vienna).

Ramme recorded this species also from the islands of Kea, Kythnos, Polivos, Andros, Paros, Antiparos, Amorgas and Skyros, but did not mention where the specimens are. It would be of interest to examine them, since some of them may be different species or subspecies.

2. *Anadrymadusa curvicercis* (Uv., 1916)

1916. *Drymadusa curvicercis* Uvarov, *Bull. Mus. Caucasus*, X : 8.
1951. *Drymadusa curvicercis* Ramme, *Mitt. Zool. Mus. Berlin*, **27** : 352 (Partim).

Fastigium of vertex elongate, prominent forward, with distinct median sulcus. Pronotum relatively short, laterally depressed ; its posterior edge rounded ; with a distinct transverse depression behind the typical sulcus ; first sulcus very distinct ; typical sulcus distinct, roundly curved behind middle of prontoum.

♂. Elytra extend beyond hind knee. Hind femur relatively short, but stout. Subgenital plate much longer than wide, with conical styli.

♀. Elytra extend a little beyond the hind knee ; hind femur more stout than in ♂ ; cercus long and regularly incurved, its apex pointed (acute) appendages of last tergite (Text-fig. 120) very long and spine-like. Ovipositor much longer than half of hind femur, stout, very slightly down-curved, regularly narrowing to apex.

Coloration testaceous-reddish-brown ; face uniformly reddish-creamy ; black fascia between eyes, orbits of eyes black ; blackish stripe behind eye. Typical pattern of pronotum distinct ; blackish big spot on the lateral lobes, reddish-creamy stripe on the lateral edge of lateral lobes ; longitudinal median black stripe on the disc ; elytra testaceous, with irregular whitish and small dark brown spots ; hind femur marbled.

♀ lighter than ♂, smoky fascia of wings darker than in ♂ ; legs light brown.

Length of body, ♂, 40, ♀, 42 ; pronotum, ♂, 9·7, ♀, 11·2 ; elytra, ♂, 40·5, ♀, 45·1 ; fore femur, ♂, 10, ♀, 12 ; hind femur, ♂, 35·2, ♀, 39 ; ovipositor, 28·3 mm.

Specimens examined : Iran : Bakhtiaria, Radjoh-Tchal Tcharaneh, viii.1950, 1 ♂, 1 ♀ (Hakim) (Mus. Leningrad).

Uvarov described this species from Kurdistan : Biare and Šenie 3 ♂, 2 ♀ (P. Nesterov). This beautiful insect looks superficially like *Ceraeocercus*, but differs from it especially by ♂ cercus and bi-concave ventral plate of ♀.

3. ***Anadrymadusa spinicercis*** (Karabag, 1956)

1956. *Drymadusa spinicercis* Karabag, *Comm. Fac. Sci. Ankara*, Serie C, **5** : 7.

♂. Fastigium of vertex a little wider than first antennal segment. Pro- and mesozona of pronotum weakly convex ; metazona flattened, with median carina on metazona ; first sulcus distinct ; typical sulcus curved in angle behind middle of pronotum. Elytra well developed, wings very broad, semicircular.

Coloration brown, face lighter, unicolourous ; frons with complete black band between eyes, which continues behind them ; pronotum above with typical pattern ; large blackish-brown spot on the lateral lobe of pronotum ; elytra with a series of round whitish spots and smaller white markings. A blackish-brown ring near the apex of femora, hind femur with a dark brown spot on the basal edge of upper edge, irregular pale brown spots and stripes on the outer surface.

♀. Median carina very weak on metazona. Hind femur very strong. Appendages of last tergite (Text-fig. 121) long and spine-like, almost parallel. Subgenital plate large, with a deep subacute excision, its lobes concave ; ovipositor much longer than half of hind femur.

Coloration as in ♂.

Length of body, ♂, 39·2–40·5, ♀, 41–42 ; pronotum, ♂, 10–11, ♀, 10·2–12 ; elytra, ♂, 41–42, ♀, 49–52·5 ; fore femur, ♂, 11·8, ♀, 13·2 ; hind femur, ♂, 38–40, ♀, 38·9–42·4 ; ovipositor, 30 mm.

Specimens examined : SW. Turkey ; Denizli province : Çal, Üçbaş Köyü 23.vi.1952, 2 ♂ (including type), 2 ♀ (British Museum) ; Hatay—S. Turkey—Yayla dağı, Yukar Tingir Köyü, 28.vi.1952, 1 ♀, Mersin : Çevlik Köyü, 2.vii.1952, 1 ♂ ; Antalya-Alaiye 16.viii.1952, 1 ♀ (Ö. K. Gülen) (Zool. Inst. Univ. of Ankara).

4. ***Anadrymadusa recticauda*** (Werner, 1903)

1903. *Drymadusa recticauda* Werner, *Zool. Anz.* **26** : 530.
1939. *Drymadusa recticauda* Ramme, *Mitt. Zool. Mus. Berlin*, **24** : 65.
1951. *Drymadusa recticauda* Ramme, *Mitt. Zool. Mus. Berlin*, **27** : 252.

♂. Fastigium of vertex wider than first antennal segment, suddenly narrowed in front, with distinct median sulcus. Pronotum stout, posterior edge broadly rounded, lateral lobes longer than wide ; first sulcus very distinct ; typical sulcus acutely curved behind the middle of pronotum, a weak median carina on metazona, lateral carina distinct in metazona ; shoulder excision distinct. Elytra reaching end of abdomen (in some specimens much longer). Hind femur relatively stout, subgenital plate longer than wide, with a deep roundly-angular excision, styli long and cylindrical.

General coloration dirty brown ; face uniformly light brown ; black band between eyes distinct ; blackish-brown band behind eye ; occiput dirty brown ; pronotum with very weak typical pattern, its upper surface until upper half of lateral lobes dark brown, lower half light brown ; black median stripe on the metazona ; black spot on the corner of shoulder excision. Elytra dirty brown, with irregular whitish-brown round spots in a line along the middle ; a dark brown ring near the apical part

of fore and mid femora ; short transverse black stripes on the upper edge near base of hind femur ; outer surface of hind femur marbled.

♀. Elytra reaching end of abdomen, or a little beyond it (in some specimens much longer) ; appendages of last tergite (Text-fig. 122) long. Hind femur stouter than in ♂ ; ovipositor nearly as long as hind femur.

Coloration as in ♂, but typical pattern of pronotum more distinct.

Length of body, ♂, 38·2–42, ♀, 37·2–44 ; pronotum, ♂, 10·5–11·9, ♀, 10·9–12·1 ; elytra, ♂, 25·7–37·1, ♀, 26·1–39·3 ; fore femur, ♂, 11·5–12·1, ♀, 11·3–12·2 ; hind femur, ♂, 37–40·1, ♀, 38·1–41·2 ; ovipositor, 32–36 mm.

Specimens examined : S. Turkey, Adana, 1904, 1 ♂, 1 ♀ (Ramme det.) (Berlin Mus.) ; Mersin, 22.vii.1952, 1 ♂, 2 ♀ ; Hatay, Yayladagi, Yukaritingir Köyü, 28.vi.1952, 1 ♂, Tarsus, Açikova Köyü, 25.vii.1952, 1 ♀ (Ö. K. Gülen) (Zoolog. Inst. Univ. of Ankara) ; Maraş-Göksun, 18.vii.1951, 1 ♂, 1 ♀ (Ö K. Gülen), (Brit. Mus.) ; Mersin, 22.vii.1952, 1 ♂, 2 ♀ (Ö. K. Gülen) (Zoolog. Inst. Univ. of Ankara).

Werner described this species from a single female from Afiun-Karahissar (=Afyonkarahisar) (leg. Forgetto), but the type is missing. He also recorded 1 ♀ from Latakia, N. Syria, which I have not seen. Ramme (1939, 1951) gave a description based on ♂ and ♀ from Adana, which I have examined. My illustrations are of ♂ from Mersin and ♀ from Adana. Until ♂ and ♀ specimens from Afiun-Karahissar (=Afyonkarahisar) are studied, one cannot be quite certain whether my interpretation of the species is correct.

Adelung (*Hor. Soc. ent. Ross.*, 1907 : 72) recorded 1 ♂ larva from Bortsch'cha (NE. Turkey) and 1 ♀ larva from Singot (Batum), but such records are obviously doubtful.

5. ***Anadrymadusa retowskii*** (Adelung, 1907)

1907. *Paradrymadusa retowskii* Adelung, *Ann. Mus. Zool. St. Petersb.* **12** : 403.
1929. *Drymadusa retowskii* Miram, *Ann. Mus. Zool. Ac. Sci. U.R.S.S.* : 461.

♂. Fastigium of vertex a little narrower than first antennal segment, with fine median sulcus. Pronotum of the same width throughout ; posterior edge broadly rounded ; metazona flattened, first sulcus distinct, typical sulcus roundly curved a little behind middle of pronotum ; no median carina ; lateral carina distinct at the metazona ; transverse depression behind typical sulcus distinct ; shoulder excision shallow.

Elytra reaching a little beyond second tergite Hind femur relatively short. Appendages of last tergite down-curved, apically spine-like, very acute ; a wide depression in the middle of last tergite. Subgenital plate with a deep subacute excision.

General coloration light brown (some specimens dirty brown) ; face uniformly whitish-brown, black band between eyes ; occiput very weakly marbled ; pronotum with typical pattern ; a longitudinal creamy spot on the posterior edge of lateral lobe and blackish spot over it ; elytra dark brown, with a series of round light spots, and a few small irregular spots ; hind femur marbled on the upper half, light brown in the lower half ; apical part of appendages of last tergite reddish-brown.

♀. Elytra as in Text-fig. 117. Ovipositor approximately as long as hind femur, regularly down-curved.

Coloration as in ♂, but typical pattern of pronotum weaker in some specimens ; elytra with one or two small round light spots ; apical part of ovipositor edged with black.

Length of body, ♂ 29.1–35·5, ♀, 39–41 ; pronotum, ♂, 9·4–10·1, ♀, 10·2–11 ; elytra, ♂, 8·4–9·1, ♀, 7·8–8·1 ; fore femur, ♂, 8·1–8·9, ♀, 9·1–9·4 ; hind femur, ♂, 25–26·3, ♀, 28·9–29·1 ; ovipositor, 26–26·4 mm.

Specimens examined : Crimea : Karadagh, 14.ix.1929, 2 ♂, 1 ♀ (S. Fedorov), 23.viii.1923, 1 ♂, 1 ♀ (V. Boldyrev) (Brit. Mus.).

Adelung described this species from a single female from Aluschta (S. coast of Crimea). Miram (1929) gave description of ♂. I include it in *Anadrymadusa*, although the female ventral plate is of unique structure, and a distinct genus may be required when the whole group is better known.

6. ***Anadrymadusa adzharica*** (Uvarov, 1934)

1934. *Drymadusa adzharica* Uvarov, *Eos*, 10 : 48.
1939. *Drymadusa adzharica* Ramme, *Mitt. Zool. Mus. Berlin*, **24** (1) : 66.

♂. Fastigium of vertex wider than first antennal segment, with distinct median sulcus. Pronotum flattened at metazona ; first sulcus of pronotum very distinct, typical sulcus curved, a parabola behind middle of pronotum, posterior edge of pronotum round ; median carina very weak at metazona ; transverse depression behind typical sulcus very distinct ; lateral carina distinct on metazona ; shoulder excision shallow. Elytra extending to base of eighth tergite. Hind femur stout, but relatively short. Appendages of last tergite almost hook-like ; subgenital plate with a triangular emargination.

General coloration pale greyish-buff ; face uniformly creamy-brown, black band between eyes ; pronotum with typical pattern ; upper part of pronotal lobes reddish-brown, lower part light ; corner of shoulder excision blackish-brown. Elytra indefinitely marked with blackish-brown, brown and pale-buff, two oblong brown spots on a pale background in apical third of discoidal area. Hind femur with series of small brown dots along the middle of outer surface ; a series of transverse black-brown spots on the upper edge of base.

Length of body 41 ; pronotum 12·5 ; elytra 24 ; fore femur 11 ; hind femur 34·5 mm.

Specimen examined : NE. Turkey : Lomasheni near Artvin, 28.vi.1911, 1 ♂ (J. Voronov) (British Museum).

Uvarov described this species from a single male, and gave only measurements of female. Ramme (1939) described the female from Kvartschana (NE. Turkey : Tchorokh Province), 5.vii.1911 (Berlin Mus.), which I could not examine, and Ramme's data are used in my key.

7. *Anadrymadusa ornatipennis* (Ramme, 1926)

1926. *Paradrymadusa ornatipennis* Ramme, *Deut. ent. Zeitschr.* : 282.
1939. *Drymadusa ornatipennis* Ramme, *Mitt. Zool. Mus. Berlin*, **24** (1) : 67.

♂. Pronotum long, cylindrical ; posterior edge broadly rounded ; metazona flattened, median carina absent ; lateral carina weak, only at posterior end of metazona ; shoulder excision rather distinct. Elytra longer than pronotum, extending to middle of IV tergite. Appendages of last tergite crossed apically (possibly the effect of drying). Subgenital plate with round excision.

Black band between eyes ; pronotum with weak typical pattern, dark yellowish-brown spots on the pronotal lobes, its posterior edge dirty yellow, a broad and weak darkish median line ; elytra dark brown, with a series of small round yellowish spots, and some irregular whitish spots near posterior edge ; dark brown ring near the apices of femora and bases of tibiae ; spines of femora blackish-brown.

♀. Large. Pronotum stouter and wider, elytra longer than in ♂ ; lateral carina very weak, metazona not flattened. Legs stouter and longer, hind femur very strong.

Pronotum uniformly light dirty brown, without typical pattern ; dark stripe on the outer surface of hind femur.

Length of body, ♂, 32·6, ♀, 42·8 ; pronotum, ♂, 9·1, ♀, 12·1 ; elytra, ♂, 11·1, ♀, 12 ; hind femur, ♂, 31, ♀, 37·2 ; hind tibia, ♂, 31, ♀, 36·6 ; ovipositor, 28 mm.

Specimens examined : Greek islands : Samos (Marathokanpos), 1 ♂, 1887 (v. Oertzen) (type) ; Nisyros (S. Sporaden), 1 ♀ (v. Oertzen) (Berlin Mus.) ; Xantha, 1 ♀ (British Mus.).

Ramme records (1926) from Symi (S. Sporaden), 1 ♂ and Chios (Volissos), 1 ♀.

This species is described by Ramme from one male from Samos, one male (paratype) from Symi (S. Sporaden), one female from Chios (Volissos) and one female fromNisyros (S. Sporaden), but I am not sure that the two females which I studied belong to this species. Until a female from the type locality (Samos) is studied the problem remains open. Ramme (1939) recorded this species also from SW. Anatolia (Fethié = Makri), Göcek, 6.viii.1930, 1 ♀ (R. Delmas) (Mus. Alexander Koenig in Bonn), but I have not seen this specimen and regard the record as improbable.

8. *Anadrymadusa albomaculata* (Karabag, 1956)

1956. *Drymadusa albomaculata* Karabag, *Com. Fac. Sci. Univ. Ankara*, (C), **5** : 8.

♀. Fastigium of vertex wider than first antennal segment, with distinct median sulcus. Pronotum relatively small, its posterior edge almost straight, pro- and mesozona slightly convex, metazona flat, first sulcus very distinct, typical sulcus roundly excised behind the middle of pronotum, median carina weak at the metazona, lateral carina distinct in metazona ; transverse depression almost in the middle of metazona ; shoulder excision distinct. Elytra much longer than pronotum, reaching the middle of V tergite, with a series of 3–4 round white spots. Ovipositor almost three times the length of pronotum.

General coloration brown, face reddish light brown ; frons with a black band between eyes ; pronotum uniformly brown, a light long spot below shoulder excision edge ; femora with dark brown pre-apical rings.

Length of body, 32·6 ; pronotum, 9·5 ; elytra, 13·4 ; hind femur, 33 ; hind tibia, 32·3 ; ovipositor, 27·8 mm.

Specimen examined : SW. Turkey, Muğla : Fethiye, *c.* 300–600 m., 15.vii.1953, 1 ♀ (type) (K. Erel) (British Museum).

I described this species from a single female, but the male of this distinct insect remains unknown.

V. *CERAEOCERCUS* Uvarov, 1910

1910. *Ceraeocercus* Uvarov, *Hor. Soc. ent. Ross.* **39** : 381.
1939. *Ceraeocercus* Ramme, *Mitt. Zool. Mus. Berlin*, **24** (1) : 61.

Fastigium of vertex flattened above, almost as wide as first antennal segment, gradually narrowed at the front, with very fine median sulcus.

Pronotum (Text-figs, 6, 6A), with flat metazona, its posterior edge almost straight, or very broadly rounded ; no median carina ; lateral carina very distinct on the metazona ; shoulder excision distinct ; first sulcus distinct ; typical sulcus also distinct, but interrupted in the middle, each branch ending in a round pit ; a transverse depression behind typical sulcus. Elytra and wing much longer than half of abdomen.

♂. Last tergite (Text-figs. 131, 131A) very large, with very broad lobes, its middle parts with distinct depression. Cercus (Text-fig. 132) cylindrical, without enlarged basal articulation, strongly incurved at the middle, two-branched at the apical part, second branch is on the upper side, both ending in very acute spine.

Face uniformly whitish, no continued black fascia between eyes ; only orbits of eyes and antennal sockets black, or blackish-brown ; front surface of fastigium of vertex and fastigium of frons same colour as the face. Elytra with blackish and creamy-buff irregular spots.

♀. Ovipositor much longer than half of hind femur, regularly down-curved.

DISTRIBUTION. Kazakhstan, Tadzhikistan, Turkmenistan, Hindukush.

KEY TO SUBSPECIES

1 (2) Elytra and wing do not reach hind knee ; wings black
1. ***fuscipennis fuscipennis*** Uvarov
2 (1) Elytra and wing extend beyond hind knee ; wings brown with lighter fenestration . . . . . 2. ***fuscipennis hindukushanus*** Ramme

1. *Ceraeocercus fuscipennis fuscipennis* Uvarov, 1910

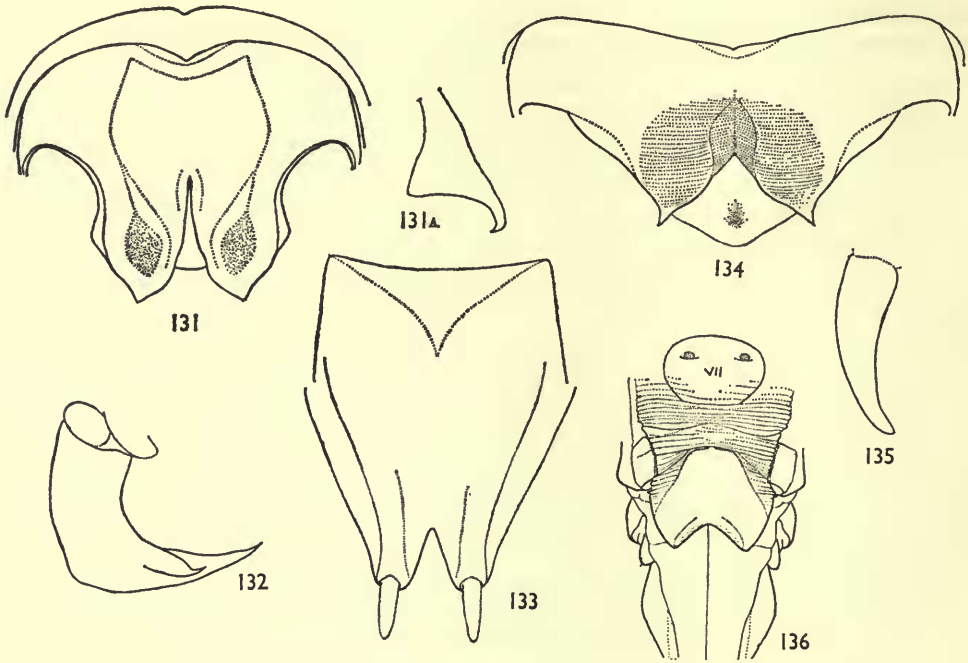
1910. *Ceraeocercus fuscipennis* Uvarov, *Hor. Soc. ent. Ross.* **39** : 382.

♂. Fastigium of vertex a little wider than first antennal segment. First sulcus of pronotum very distinct ; typical sulcus roundly curved a little behind middle of pronotum. Elytra reaching end of abdomen (in some specimens longer). Hind legs

relatively short and slender. Subgenital plate with deep subacute excision, styli conical (Text-fig. 133).

General coloration creamy-brown, orbits of eyes and antennal sockets blackish-brown ; occiput blackish marbled ; blackish-brown stripe behind eye ; disc of pronotum with typical pattern and with two blackish parallel fine median lines ; typical sulcus and its pits are black ; lower half of lateral lobes creamy-brown ; a creamy spot below the shoulder excision.

Elytra blackish-brown, with buff-creamy markings ; first and second femora uniformly light brown ; hind femur with brown marbled upper edge and a series of brown spots along the middle of outer surface ; lower surface of tarsus dark brown.



Figs. 131–136. 131, *Ceraeocercus fuscipennis fuscipennis* Uv., ♂ last tergite ; 131A, apical parts of appendages in profile ; 132, left cercus ; 133, subgenital plate ; 134, ♀ last tergite ; 135, left cercus ; 136, VII sternite, subgenital plate and basis of ovipositor.

♀. Appendages of last tergite (Text-fig. 134) broadly triangular, their apices pointed ; cercus (Text-fig. 135) long and conical, regularly incurved, not branched. Ovipositor longer than twice the length of pronotum (in some specimens much longer).

Coloration as in ♂.

Length of body, ♂, 33–37·5, ♀, 35–42 ; pronotum, ♂, 9·1–9·4, ♀, 8·8–10·3 ; elytra, ♂. 26·3–29·8, ♀, 26–37·3 ; fore femur, ♂, 9·3–10·1, ♀, 9·4–11 ; hind femur, ♂, 26–30·7, ♀, 27·1–34·9 ; ovipositor, 22–28·3 mm.

Specimens examined: U.S.S.R.: Kazakhstan, Gurief Reg., Lake Inder, 22.vi.1951, 1 ♂ (topotype) (U. A. Chetyrkina); N. slope of Saur Mts. 1,100–1,200 m., 31.viii–5.ix.1946, 1 ♂, 1 ♀ (Krijanovskyi) (Bei-Bienko det.); Barsa Kilmes, Aral Sea, 2–12.vii.1928, 1 ♂ (Nazarof); N. slopes of Dzhungar Alatau, E. Kazakhstan, 1,800–2,000 m., 20 Km. Or. Tentek, vii.1947, 1 ♀ (Bei-Bienko) (Leningrad Mus.); Central Asia: Fergana, Vuadil, 28.iv.1913, 1 ♀ (Collect. ?) (British Museum); Krasnovodsk, Turkmenia, 21.vi.1932, 1 ♀ (Coll. Zool. Inst.); Kara-Tau, 10.vi.32, 1 ♀ (Pravdin); Alexandrovski range, 25.viii.31, 1 ♂ (Veltistshev) (Leningrad Mus.); Iran: Shakhrud, vi.1914, 1 ♀ (Kinitshenko) (Uvarov det.) (British Mus.); N. Iran: Khorasan, 1 ♂, 1 ♀ (Predtetshenski) (Leningrad Mus.).

This interesting species was described by Uvarov from the Lake Inder, but the species is widely distributed. Specimens from different localities differ, especially in the length of elytra and ovipositor, and pattern of head and pronotum. I regard all the specimens which I have examined as the same subspecies, but further studies of more abundant material are necessary.

2. *Ceraeocercus fuscipennis hindukushanus* Ramme, 1939

1939. *Ceraeocercus fuscipennis hindukushanus* Ramme, *Mitt. Zool. Mus. Berlin*, **24** (1) : 61.

♂. More slender. Elytra very long and gradually narrowed; wings large, a little shorter than elytra. Legs relatively long and slender, hind femur very slender.

Coloration brown with creamy-buff pattern; metazona darker than pro- and mesozona, with pale brown median stripe; lower half of lateral pronotal lobes yellowish-brown, upper corner of shoulder excision with a blackish-brown spot, below it a light stripe on the posterior edge of the pronotal lobe; elytra blackish-brown, with creamy markings; and a series of oval whitish spots along the middle; femora greyish-brown.

♀. As in ♂. Ovipositor longer than $2\frac{1}{2}$ times length of pronotum, slightly decurved.

Coloration as in ♂.

Length of body, ♂, 40, ♀, 36·5; pronotum, ♂, 9·3, ♀, 10·6; elytra, ♂, 49, ♀, 45·1; fore femur, ♂, 11·7, ♀, 12; hind femur, ♂, 34·9, ♀, 37·3; ovipositor, 28·6 mm.

Specimens examined: Kondar Gorge, Tadzhikistan, 11.vii.37, 1 ♂, 1 ♀ (Gussakovskii) (Leningrad Museum).

This subspecies was described by Ramme from W. Hindukush, Andarab, Banu distr., 2,000–2,500 m., viii.1936, 1 ♀, and ♀ of *f. longipennis* from E.-Hindukush (Badachschan), Sebak.-Tal (Alpine zone), 2,800–3,000 m.

Unfortunately I have not seen the type of this subspecies, which differs by the longer elytra, particularly in *f. longipennis*, and by brown wings with lighter fenestration.